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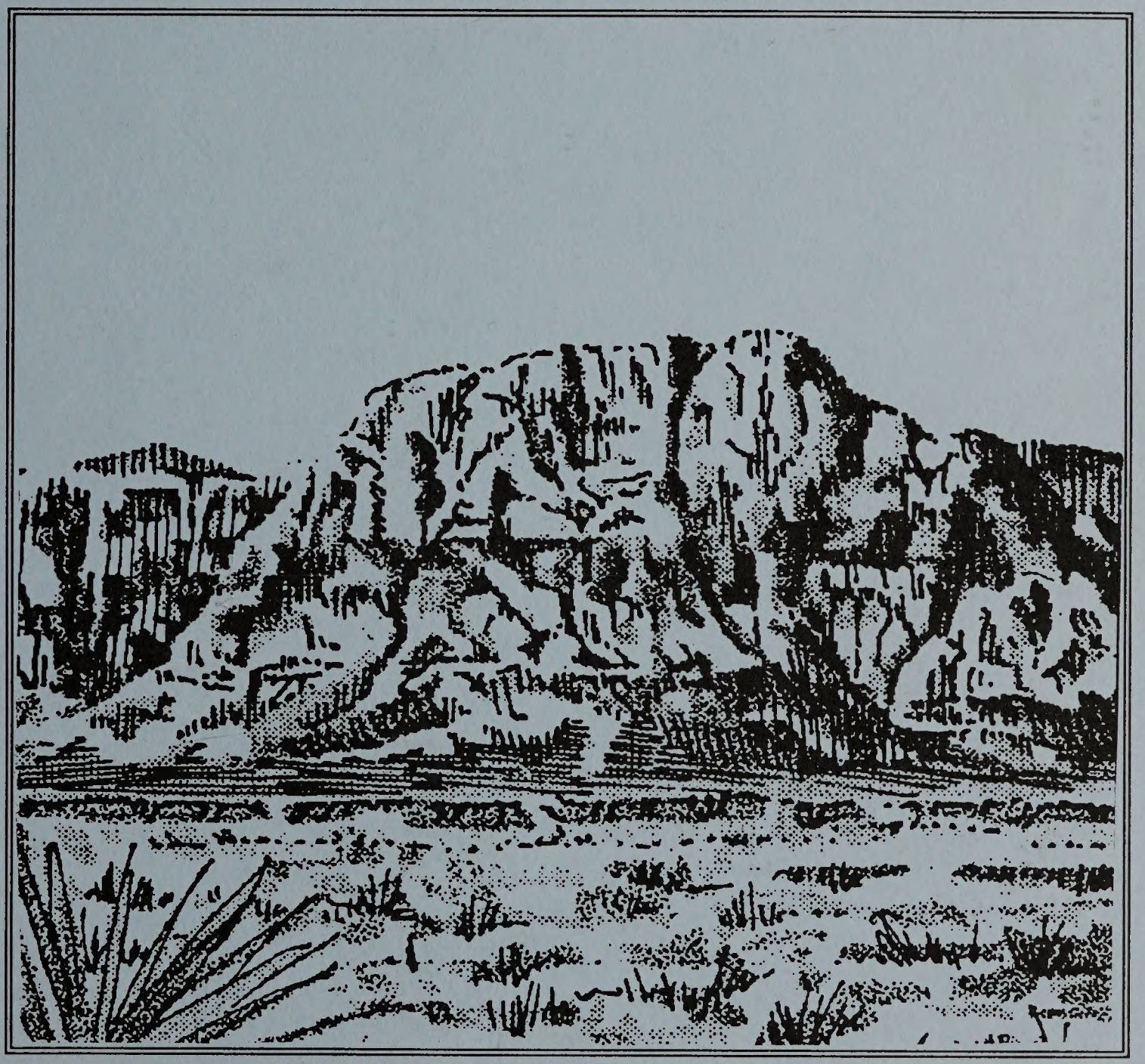
Las Vegas District
Stateline Resource Area Office, Las Vegas, NV May 1994

SUPPLEMENT to the DRAFT
Stateline Resource Management Plan
and
Environmental Impact Statement



MISSION STATEMENT

The Bureau of Land Management is responsible for the stewardship of our public lands. It is committed to manage, protect, and improve these lands in a manner to serve the needs of the American people for all times. Management is based upon the principles of multiple use and sustained yield of our nation's resources within a framework of environmental responsibility and scientific technology. These resources include recreation, rangelands, timber, minerals, watershed, fish and wildlife, wilderness, air and scenic, scientific and cultural values.

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United States Department of the Interior

BUREAU OF LAND MANAGEMENT
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May 2,1994

Dear Reader:

Enclosed for your review and comment is the *Supplement to the Draft Stateline Resource Management Plan and Environmental Impact Statement* (RMP/EIS) for the Bureau of Land Management's (BLM) Stateline Resource Area. The Stateline Resource Area encompasses approximately 3.7 million acres of public land in Clark and southern Nye Counties. This Supplement identifies and analyzes an additional alternative, Alternative E, for the long-term management of public lands administered by BLM in the planning area. It also considers the following issues either not discussed or incompletely analyzed in the previous alternatives: rangeland classification; utility corridor locations and widths; mineral management in Wilderness Study Areas (WSAs) not designated by Congress; and desert tortoise habitat management in conformance with the *Draft Recovery Plan for the Desert Tortoise* (U.S. Fish and Wildlife Service, 1993) and proposed Critical Habitat for the species. Alternative E will be considered along with the alternatives presented in the *Draft RMP/EIS,* including BLM's Preferred Alternative (Alternative D), in the preparation of a Proposed Resource Management Plan/Final EIS.

This Supplement is available for public review and comment until August 19, 1994. Workshops and open houses will be scheduled during this period to inform the public about the Supplement; specific times and locations will be announced by public notice at least 15 days prior to each meeting. Written comments concerning the Supplement should be marked "Comments on the Supplement to the DRMP" and sent to:

Stateline Area Manager
Bureau of Land Management
Las Vegas District
P.O. Box 26569
Las Vegas, NV 89126

To be considered in the Proposed RMP and Final EIS, all written comments must be postmarked no later than August 19, 1994. All comments pertaining to the issues addressed in this Supplement will be considered in conjunction with those received during the public comment period on the *Draft RMP/EIS,* which ended on December 31, 1992. For further information contact Jerry Wickstrom, Team Leader, at the Las Vegas address or telephone (702) 647-5000.

Sincerely,

Billy R. Templeton
State Director, Nevada

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SUPPLEMENT TO THE DRAFT

STATELINE RESOURCE MANAGEMENT PLAN
AND
ENVIRONMENTAL IMPACT STATEMENT

Prepared by
DEPARTMENT OF INTERIOR
BUREAU OF LAND MANAGEMENT
LAS VEGAS DISTRICT
STATELINE RESOURCE AREA

Billy R. Templeton
State Director, Nevada

This document supplements the *Draft Stateline Resource Management Plan and Environmental Impact Statement (RMP/EIS)* for the Bureau of Land Management's (BLM) Stateline Resource Area. The Stateline Resource Ares encompasses approximately 3.7 million acres of public land in Clark and southern Nye Counties of Nevada. This Supplement identifies and analyses an additional alternative, Alternative E, for the possible long-term management of public lands administered by BLM in the planning area. It also considers four issues either not discussed or incompletely analyzed in the previous alternatives. Alternative E will be considered with the alternatives presented in the *Draft RMP/EIS* in the preparation of the Proposed Resource Management Plan/Final EIS.

For further information contact:

Jerry Wickstrom, Team Leader
Bureau of Land Management
Las Vegas District Office
P.O. Box 26569
Las Vegas, Nevada 89126
(702) 647-5000

Please submit written comments to the Stateline Area Manager, at the above address. All written comments must be postmarked by August 19, 1994.

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SUMMARY

SUMMARY

Introduction

This document supplements the *Draft Stateline Resource Management Plan/Environmental Impact Statement* (RMP/EIS) for the Bureau of Land Management's (BLM) Stateline Resource Area, which encompasses approximately 3.7 million acres of public land in Clark and southern Nye Counties. The Supplement identifies and analyses an additional alternative (Alternative E) for the long-term management of public lands administered by BLM in the planning area.

Preparation of the *Draft RMP/EIS* was begun in March of 1990, using available data and public input. The draft plan focused on six management issues, identified by BLM's public scoping process: land tenure; desert tortoise; mineral development; off-highway vehicle use (OHV); Areas of Critical Environmental Concern (ACECs); and utility corridors. Since the planning process requires that an RMP be a comprehensive document which addresses all of the resources and programs administered by BLM, the Draft RMP also identified management goals and direction for soil, air, and water resources, vegetation, riparian areas, visual resources, fish and wildlife habitat, forestry resources, livestock grazing, wild horses and burros, cultural and paleontological resources, lands, natural areas, recreation resources, wild and scenic rivers, rights-of-way, wilderness, mineral resources, and fire management. Five alternatives were developed, including the No Action Alternative, to provide a broad range of management options; Alternative D was identified as BLM's Preferred Alternative.

The *Draft RMP/EIS* was released for public review in June of 1992 and was the subject of public hearings and meetings during the summer of 1992. The public comment period, which ended on December 31, 1992, resulted in 339 written comments and testimony recorded at the hearings and meetings. Public input, as well as the availability of pertinent new data, have indicated the need to prepare a Supplement to the *Draft RMP/EIS* which would consider four issues either not discussed or incompletely analyzed in the previous alternatives. These four issues include (1) rangeland classification; (2) utility corridor locations and widths; (3) minerals management/post Congressional non-designation of Wilderness Study Areas (WSAs); and (4) desert tortoise habitat management in conformance with the *Recovery Plan for the Desert Tortoise (Mojave Population)* (USFWS, 1993). Alternative E identifies and analyses management goals, objectives, and direction for these issues, as well as for all of the programs and resources managed by BLM. Following the 90 day public comment period, this alternative will be considered with the five alternatives developed in the Draft RMP in the development of a Proposed RMP/Final EIS.

Alternative E proposes management direction to provide for public land uses on the basis of multiple-use and sustained yield, while emphasizing biodiversity and the protection and recovery of the threatened desert tortoise. The components of Alternative E are described in Chapter 2 of this document; impacts anticipated as a result of implementing Alternative E are detailed in Chapter 4. Management direction and actions developed to address the four issues considered in the Supplement are summarized as follows.

Planning Issues

1. Rangeland Reclassification/Livestock Grazing Management

Livestock grazing allotments which meet defined criteria would be designated either ephemeral or ephemeral-perennial, with grazing preference set by this alternative. Grazing preference for each allotment would be based on the average use for the past 10 years. Fourteen allotments would be reclassified from Ephemeral to Ephemeral-Perennial and seven allotments would be reclassified from Ephemeral to Perennial. Grazing would not be authorized on inactive Ephemeral-Perennial or Perennial

allotments unless grazing systems are in place which provide for the protection and management of the perennial species and riparian areas.

Eleven allotments would be open to livestock grazing; the remaining allotments would be closed. Use authorization would be based on the *Recovery Plan for the Desert Tortoise (Mojave Population)* (USFWS, 1993), Section 7 consultation under the *Endangered Species Act*, the physiological requirements of key perennial species, and riparian management objectives. All grazing in desert tortoise habitat located outside of Areas of Critical Environmental Concern/Desert Wildlife Management Areas (ACECs/DWMAs) would be managed under Prescription 2 of the Biological Opinion.

2. Utility Corridors

Fourteen routes for utility/transportation corridors are proposed for designation throughout the Stateline Resource Area, in order to minimize the proliferation of utility lines. Several corridor criteria were recommended in this alternative to resolve resource conflicts. The criteria included a 3,000 foot limitation on corridor width, the co-location of major pipeline rights-of-way within powerline corridors, and the avoidance of private property in corridor siting.

3. Minerals Management/post Congressional Wilderness Designation

All Wilderness Study Areas (WSAs) in the Stateline Resource Area would continue to be managed under *Interim Management Policy* until Congress either designates these areas as Wilderness or releases them from further wilderness consideration. Any designated as Wilderness would be managed under Visual Resource Management (VRM) Class I criteria. Under Alternative E, all WSAs released by Congress from wilderness consideration would be managed under multiple use to allow for mineral exploration and development, while maintaining the existing qualities of these areas. An approved mining Plan of Operations would be required in the following eight WSAs which occur within proposed ACECs: Arrow Canyon; Fish and Wildlife #1,2,3; Ireteba Peaks; Garrett Buttes; Jumbo Springs; Lime Canyon; Million Hills; and Virgin Peak.

4. Desert Tortoise Habitat Management/Special Management Areas

Four special management areas, totaling approximately 798,000 acres, are proposed for designation as ACECs/DWMAs to protect tortoise habitat and sustain viable populations of the species. Proposed management actions which affect land uses would be consistent with these goals. These would include "limited to designated roads and trails" Off-Highway Vehicle (OHV) designations, minimized use of mechanized equipment during fire suppression; mitigation of impacts resulting from surface-disturbing activities, including mineral exploration and development, through project design and reclamation; and the authorization of livestock grazing in ACECs/DWMAs only as part of an authorized grazing study.

A total of 23 ACECs (including four ACECs/DWMAs for tortoise management) are proposed for designation to direct special management attention to the protection of sensitive wildlife habitat, plant species, geologic values, cultural resources, and Traditional Lifeways values identified by Native American groups. Three previously designated Natural Areas would be contained within the proposed ACECs. Recommended management actions which could affect land uses would include constraints on new road construction; motorized use limitations to designated roads and trails, designations for right-of-way avoidance areas; and the requirement for an approved mining Plan of Operation prior to mineral developments.

Approximately 11,600 acres adjacent to the Desert Tortoise Conservation Center would be withdrawn from all public land laws and closed to fluid mineral leasing, locatable mineral, non-energy leasables, and mineral materials. Additional facilities could be developed at that site to enhance the environmental education and research functions of the Center.

CHAPTER 1

PURPOSE AND NEED

CHAPTER 1

PURPOSE AND NEED

INTRODUCTION

This document is a supplement to the *Draft Stateline Resource Management Plan/Environmental Impact Statement (RMP/EIS)* for the Bureau of Land Management's (BLM) Stateline Resource Area (SRA), which encompasses approximately 3.7 million acres of public land in Clark and southern Nye Counties (Map 1-1). The Supplement identifies and analyses an additional alternative (Alternative E) for the long-term management of public lands administered by BLM in the planning area.

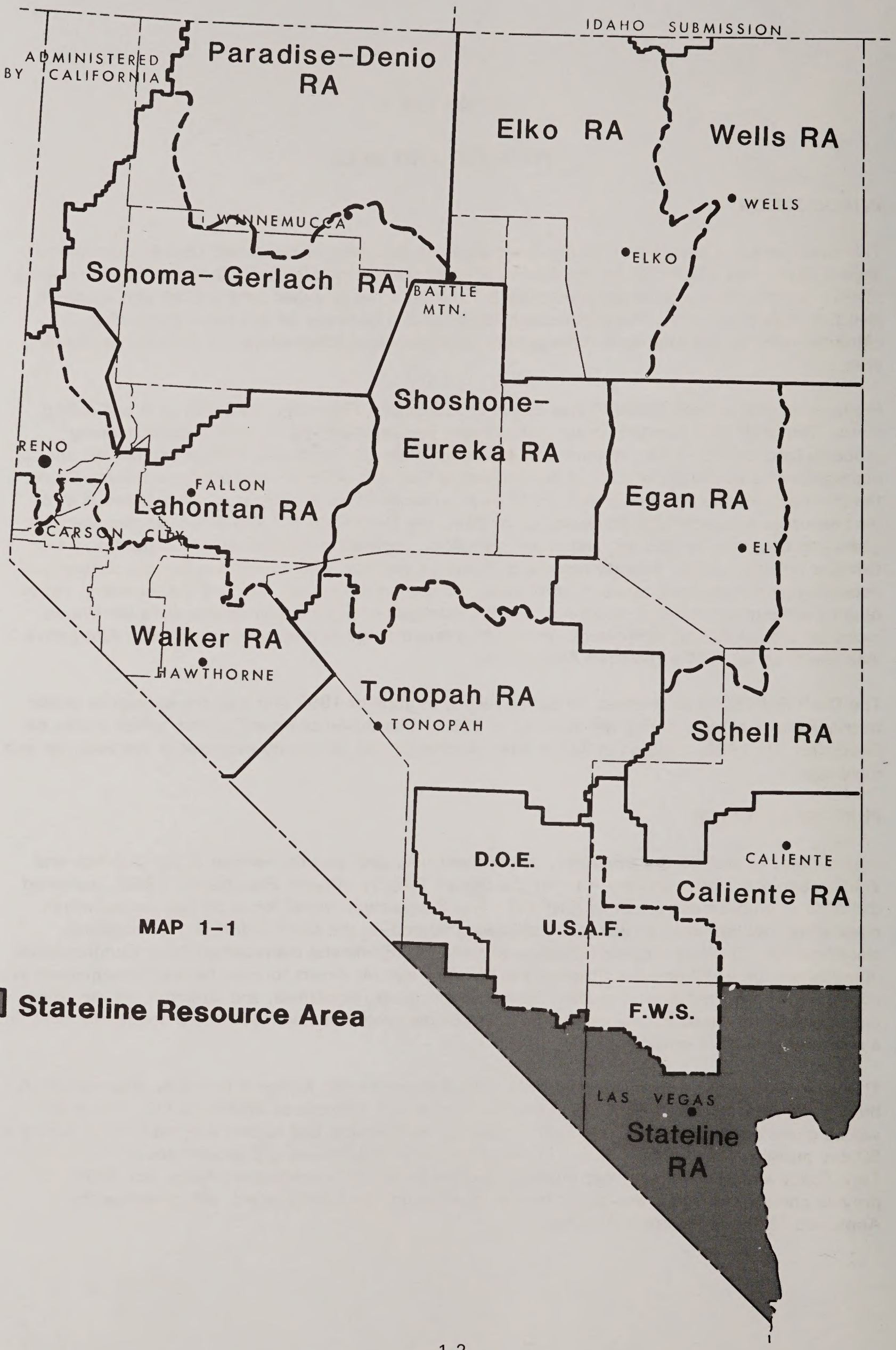
Preparation of the *Draft RMP/EIS* was begun in March of 1990, using available data and public input. The draft plan focused on six management issues, identified by BLM's public scoping process: land tenure; desert tortoise; mineral development; off-highway vehicle use (OHV); special management areas/Areas of Critical Environmental Concern (ACECs); and utility corridors. Since the planning process requires that an RMP be a comprehensive document which addresses all of the resources and programs administered by BLM, the *Draft RMP/EIS* also proposed management goals and direction for soil, air, and water resources, vegetation, riparian areas, visual resources, fish and wildlife habitat, forestry resources, livestock grazing, wild horses and burros, cultural and paleontological resources, lands, natural areas, recreation resources, wild and scenic rivers, rights-of-way, wilderness, mineral resources, and fire management. Five alternatives were developed, including the No Action Alternative, to provide a broad range of management options; Alternative D was identified as BLM's Preferred Alternative.

The *Draft RMP/EIS* was released for public review in June of 1992 and was the subject of public hearings and meetings during the summer of 1992. The public comment period, which ended on December 31, 1992, resulted in 339 written comments and testimony recorded at the hearings and meetings.

PURPOSE AND NEED

Public input, as well as the availability of pertinent new data and the release of the U.S Fish and Wildlife Service *Draft Recovery Plan for the Desert Tortoise (Mojave Population)* (1993), indicated the need to supplement the *Draft RMP/EIS*. The Supplement would focus on four issues which were either not included, or were incompletely analyzed, in the *Draft RMP/EIS*: (1) rangeland classification; (2) utility corridor locations and widths; (3) mineral management/post Congressional non-designation of Wilderness Study Areas (WSAs); and (4) desert tortoise habitat management in conformance with the *Recovery Plan*. Management goals, objectives, and direction are identified and analyzed for these issues, as well as for all of the programs and resources managed by BLM, in a new alternative (Alternative E).

This alternative will be considered with the five alternatives (No Action Alternative, Alternatives A through D) from the *Draft RMP/EIS* in the development of a Proposed RMP/Final EIS. The public will be given an opportunity to formally review the Supplement and submit their comments during a 90 day public review period. This is in compliance with regulations and procedures of the *Federal Land Policy and Management Act (FLPMA)* and the *National Environmental Policy Act (NEPA)* to provide complete analysis and public review of all recommendations which will comprise the Approved RMP and Record of Decision.



MAP 1-1

Stateline Resource Area

DESCRIPTION OF THE PLANNING AREA

The planning area for the *Draft RMP/EIS* and Supplement corresponds to the SRA, located in southern Nevada (see Map 1-1). The SRA comprises 3,671,127 acres of public lands in Clark County and a portion of southern Nye County (see Table 1-1). The BLM is also responsible for the management of the subsurface of an additional one million acres of split estate lands in the planning area. A portion of this mineral estate underlies surface estate managed by other Federal agencies and is subject to the surface management policies of those agencies. The remainder of this mineral estate is on split estate lands and underlies surface estate which is in private ownership. Split estate lands are of two types: 1) those where the subsurface or mineral estate (or a portion thereof) is owned by the Federal government while the surface is under private ownership) or 2) those where the Federal government owns the surface while the subsurface minerals (or a portion thereof) are in private ownership (see Table 1-2). For a more complete description of the planning area, refer to the Stateline *Draft RMP/EIS*, Chapter 1.

PLANNING PROCESS OVERVIEW

Preparation of the supplement to the *Draft RMP/EIS* will follow the nine steps of the BLM planning process:

Step 1: Identification of Issues

In 1990, the public scoping process for the *Draft RMP/EIS* identified the following issues which will be brought forward in the Supplement:

Issue I. Land Tenure
Issue 2. Desert Tortoise
Issue 3. Mineral Development
Issue 4. Off Highway Vehicle (OHV) Use
Issue 5. Special Management Areas/ACECs
Issue 6. Utility Corridors

Concerns Not Addressed In the *Draft RMP/EIS*:

Water issues pertaining to the Las Vegas Valley Water Districts water applications and the Yucca Mountain Project were determined to be beyond the scope of the RMP process. Rangeland reclassification was also determined to be an administrative process outside the planning process.

Issues Identified for Analysis in the Supplement

Issue 1. Rangeland Classification

Public and other management agencies' comments prompted the reconsideration of rangeland classification as an issue for the Supplement. Although classification is an administrative action, the determination of grazing preference must be analyzed through the planning process. BLM has completed new field evaluations of rangelands in SRA which provide the technical basis for reclassification of many allotments currently classified as ephemeral range and managed under the Ephemeral Range Rule. Ephemeral range is predominantly composed of annual species, lacks perennial species, and is generally grazed in the spring. Some allotments have, however, been grazed year-round, resulting in the grazing of perennial species. In many of the lower elevation

Table 1-1. Surface ownership of lands in the Stateline Resource Area.

BLM Acres	Other Federal Acres	Patented* Acres	Planning Area Total Acres
3,671,127	913,826	538,751	5,123,704

* Patented Lands include private and State of Nevada Lands

(Source: BLM, Las Vegas District Office files 1991.)

Table 1-2. Federal ownership of the mineral estate in the Stateline Resource Area.

Type of Mineral	Acres
All Minerals	4,640,633
All Leasable Minerals	1,332
Oil and Gas	42,576
Sodium and Potassium	20,491
Sodium	2,139
Potassium	480
Geothermal	548
Coal	300
Locatable Minerals	220
Fissionable Minerals	80
Saleable Minerals	1,135
Saleable Minerals except for sand and gravel	160
Total	**4,710,094**

(Source: BLM, Las Vegas District Office files 1991.)

allotments, which would remain ephemeral range, grazing is restricted from March I through June I4 per Section 7 of the *Endangered Species Act* for the benefit of desert tortoise, a threatened species.

Issue 2. Utility Corridors

Section 503 of the *Federal Land Policy and Management Act* requires BLM to designate utility corridors to prevent the proliferation of rights-of-ways (ROWs) across the public lands. All large utilities would be directed to use designated corridors, if at all possible, while smaller utilities could use the corridors, but would have the flexibility to locate outside of the corridors.

The *Draft RMP/EIS* proposed to designate a network of corridors throughout the planning unit. Public input, reevaluation of expected demand, and the need to resolve resource conflicts have generated the identification and analysis of 14 corridors in this Supplement.

Issue 3. Mineral Management After Congressional Designation of Wilderness Areas

Planning Criteria J of the *Draft RMP/EIS* required that management goals and direction be developed for all wilderness study areas (WSAs) within the planning area in the event that these areas were not designated by Congress as wilderness areas and "released" from further study. The *Draft RMP/EIS* identified the WSAs as having inherent semi-primitive non-motorized values for recreational activity. Protection and management of these areas to meet the recreation standards for semi-primitive values (see Glossary for definitions) were included in Wilderness recommendations for all alternatives, except the No Action Alternative. Public comments suggested that the alternatives did not analyze a full range of management options for minerals development within the WSAs. The Supplement presents additional management objectives and direction in Alternative E for WSAs which are not Congressionally designated as wilderness.

Issue 4. Desert Tortoise Management in Conformance with the *Recovery Plan*

The U.S. Fish and Wildlife Service (USFWS) made the *Draft Recovery Plan for the Desert Tortoise (Mojave Population)* available to the public in April of 1993. The USFWS proposed Critical Habitat for the desert tortoise on August 30, 1993 (*Federal Register*, Vol. 58, No. 166). Four of the alternatives in the *Draft RMP/EIS* contained designations (ACECs) and management recommendations, derived from the Clark County Habitat Conservation Plan proposals and public input, to protect desert tortoise habitat within the planning area. These recommendations required evaluation against specific criteria and objectives included in the *Draft Recovery Plan*. Alternative E proposes management objectives and direction which will be considered in the development of the BLM Proposed RMP/FEIS.

Step 2: Development of Planning Criteria

Planning criteria were formulated to guide development of the *Draft RMP/EIS*; the same criteria were used in the preparation of the Supplement (see *Draft RMP/EIS*, Chapter 1 for a complete discussion of these criteria). No additional criteria were developed for the preparation of the Supplement.

Step 3: Inventory and Data Collection

As stated in Criteria B of the *Draft RMP/EIS* (p. 1-7), this planning effort will rely on available inventories of the lands and resources in SRA to reach sound management decisions. The Supplement will incorporate the most current data which provide the scientific basis for rangeland

classifications, technical reviews of utility corridor feasibility, and the results of recent field evaluations of desert tortoise habitat.

Step 4: Analysis of the Management Situation

The Analysis of the Management Situation (AMS) is a general assessment of the current management situation. It includes a description of current BLM management guidance, a discussion of existing problems and opportunities for solving them, and a consolidation of existing data that are needed to analyze and resolve the identified issues. Generally speaking, the AMS is incorporated as the Continuing Management Guidance, Alternatives, and Affected Environment of the *Draft RMP/EIS* and Supplement.

Step 5: Formulation of the Alternative

Alternative E of this Supplement identifies and analyses additional management objectives and direction which will be considered, together with five alternatives contained in the *Draft RMP/EIS*, in developing the Proposed RMP/Final EIS.

Step 6. Estimation of the Effects of the Alternative.

In accordance with *National Environmental Policy Act*, the environmental and socio-economic consequences of implementing Alternative E are evaluated to permit an assessment of impacts. A general analysis of the issues and concerns for the planning area was completed; site-specific environmental assessments (EAs) will be prepared for specific projects and proposals on an activity plan or project-specific basis.

Step 7. Selection of the Preferred Alternative

Analysis of the issues, the resources affected, and the management guidance contained in the two existing land use plans resulted in the selection of Alternative D as BLM's Preferred Alternative in the *Draft Stateline Resource Management Plan/Environmental Impact Statement*; Alternative D remains the agency's preferred alternative. However, all alternatives, including Alternative E of this Supplement, will be considered in the development of the Proposed RMP/Final EIS.

Step 8. Selection of the Proposed Plan

Following the 90 day public review and comment period of the Supplement, Alternative E will be considered with the five other alternatives in the development of the Proposed RMP/Final EIS. Based on an evaluation of public comments, BLM may retain the preferred alternative as the proposed plan, reassess and modify the preferred alternative to meet management needs, or select a different alternative, from the range of alternatives identified in the *Draft RMP/EIS* and the Supplement. The Las Vegas District Manager will recommend a proposed plan to the BLM State Director for approval. After reviewing the recommended proposed plan, the Nevada State Director will file the Proposed RMP/Final EIS with the Environmental Protection Agency (EPA) and distribute the document to the public.

When the Proposed RMP/EIS is filed with the EPA, the following sequence of concurrent reviews also begins:

a. A 30 day protest and appeal period begins. If a protest is received during this time the BLM Director will resolve the protest.

b. The Governor of the State of Nevada will be given a 60 day consistency review, allowing the State to determine whether the PRMP/FEIS is consistent with state and local government plans and policies. The 60 day period begins when the Governor receives the copies of the document.

c. BLM will initiate Formal Section 7 Consultation with the U.S. Fish and Wildlife Service. This process may take up to 135 days.

After completion of all of these reviews, the State Director will approve the plan and publish the Approved RMP/Record of Decision.

Implementation of the Stateline Resource Management Plan will begin 30 days following approval of the RMP. For designation actions such as corridors, tortoise management or ACEC boundaries, and management policies, implementation will be immediate, requiring no further review or NEPA process. Surface-disturbing activities or other actions not specifically covered in the RMP/EIS process will require further NEPA review, on a site-specific basis. Mitigation measures developed through this planning process will become special stipulations in authorization permits.

Step 9. Monitoring and Evaluation

Monitoring will be conducted annually and evaluation of the plan completed every 5 years. This process will be used to: 1) determine if resource objectives of the RMP are being met; 2) ensure that mitigation measures are technically correct and are being implemented; 3) verify that the impact analysis was correct; and 4) ensure that the RMP is current relative to legal and regulatory changes on a Federal, State or local level. Additional information gained will be considered as a basis for amendment or revision of the RMP. An amendment process is outlined in Chapter 6 of the *Draft RMP/EIS*.

CONSISTENCY WITH OTHER PLANS

Alternative E of this Supplement does not introduce any known inconsistencies with officially approved and adopted resource-related policies and programs of other Federal, state or local agencies. The management direction for desert tortoise habitat management are consistent with the intent of the U.S. Fish and Wildlife Service's *Draft Recovery Plan for the Desert Tortoise (Mojave Population)* (1993), Critical Habitat Designations, and the Clark County Habitat Conservation Plan. The *Draft RMP* has been developed involving members of the public, particularly in Clark, and Nye Counties. It has been coordinated with the existing plans of both counties. Where conflicting direction involving the management of public lands occur between this plan and those of each respective county, this RMP will comply with the laws and statutes enacted by Congress to protect the interests of the citizens of the United States.

CHAPTER 2

ALTERNATIVES

CHAPTER 2

ALTERNATIVES

INTRODUCTION

This chapter describes the management objectives and direction contained in Alternative E; this alternative will be considered in conjunction with the five alternatives (No Action Alternative, Alternatives A through D) analysed in the *Draft RMP/EIS* in developing the Proposed RMP/Final EIS. Alternative E recommends long-term management guidance for each BLM-managed resource and program in the Stateline Resource Area. An overall "goal" statement is provided, followed by a detailed description of the objectives and management direction for each resource and program.

ALTERNATIVE E

GOAL:

To provide for public land uses on the basis of multiple-use and sustained-yield while emphasizing biodiversity and the protection and recovery of the desert tortoise, in conformance with the U.S. Fish and Wildlife Service's *Recovery Plan for the Desert Tortoise (Mojave Population)*.

AIR RESOURCE MANAGEMENT

Objectives:

Ensure that Federal, State, and local air quality standards are not violated by actions occurring on BLM-administered lands.

Management Direction:

Ensure that air quality considerations are addressed during the planning process by incorporating objectives and actions into resource activity plans, including Allotment Management Plans (AMP), Habitat Management Plans (HMP), and Watershed Management Plans (WMP).

Ensure that activities on BLM-administered lands are consistent with Federal, State, and local air quality standards and regulations, by requiring that all appropriate air quality permits are acquired before BLM approval of an action.

SOILS MANAGEMENT

Objectives:

Reduce erosion and sedimentation while enhancing site productivity through the maintenance and improvement of watershed conditions.

Maintain those watersheds with a stable to slight erosion condition and low to moderate erosion susceptibility.

Improve those watersheds with a critical erosion condition and those in a stable to moderate erosion condition with a high erosion susceptibility.

Management Direction:

Complete an Order III Soil Survey by 1995 to assist in better defining watershed conditions.

Identify the potential response of watersheds to treatment in the planning area.

Prepare Watershed Management Plans (WMP) where other resource activity plans (AMPs, HMPs, etc.) cannot adequately address watershed concerns. Give priority to those watersheds within the Colorado River drainage system with a critical erosion condition or a stable to moderate erosion condition and high erosion susceptibility but good recovery potential.

WATER RESOURCE MANAGEMENT

Objectives:

Maintain the quality of those waters presently in compliance with State and/or Federal water quality standards. Improve the quality of those waters found to be in noncompliance.

Maintain or reduce salt yields emanating from public lands to meet State-adopted and EPA approved water quality standards for the Colorado River.

Ensure the availability of adequate water to meet multiple use objectives including the recovery and/or re-establishment of Special Status Species.

Management Direction:

Minimize contributions of both point and nonpoint sources of pollution (including salts) following Best Management Practices (BMP), as identified by the State of Nevada.

Determine the amount of water needed to meet management objectives. File for appropriative water rights on public and acquired lands, in accordance with the State of Nevada water laws, for those water sources that are not federally reserved.

Determine instream flow requirements and apply for necessary water rights on the Virgin River and Meadow Valley Wash.

Obtain water rights to springs associated with the grazing privilege for those allotments that are retired from livestock grazing. Maintain those waters for wildlife, wild horses and burros, and riparian habitat values.

VEGETATION MANAGEMENT

Objectives:

Maintain or improve the condition of the vegetation on 3,671,127 acres of public lands to a desired plant community or to Potential Natural Community (PNC)) within 20 years.

Maintain or improve the habitat of threatened, endangered or candidate plant species found on public lands.

Maintain or restore plant productivity on disturbed areas of the public lands

Prevent future Federal and State listing of special status plant species by maintaining sufficient quality and quantity of habitat to support viable populations.

Management Direction:

Determine the ecologic status, woodland site index, or forage value rating, as determined by plant community surveys, on all lands under Federal administration within the planning area and manage these public lands to achieve desired plant community or PNC within 20 years.

When feasible, rehabilitate, reclaim or revegetate areas subjected to surface-disturbing activities.

Manage for optimum species diversity when rehabilitating disturbed areas, unless the area originally only supported a vegetation monoculture.

Develop appropriate mitigation measures through mining Plans of Operation, Section 7 consultation, or other appropriate actions before allowing construction, mining activity or OHV activity on sites known to be habitat for threatened, endangered or candidate plant species.

Inventory special status plant species and take appropriate management actions to protect the habitat of these species. Management actions may include (but will not be limited to) fencing, segregation of habitat from land and mineral laws, and closure to OHV use.

Develop a management plan for the Nellis Dunes Recreation Area to coordinate recreation activities within that area with management strategies for *Arctomecon californica* and other special status species.

RIPARIAN MANAGEMENT

Objectives:

Ensure that 75 percent of riparian areas are in proper functioning condition by 1997, as defined in the *Riparian-Wetlands Initiative for the 90's* (USDI, BLM 1990).

Improve the condition of the riparian area associated with the Virgin River from its current condition of poor to fair to a good or better rating.

Improve the condition of the riparian zones of those springs which exhibit good recovery potential from the current poor and fair ratings to a good or better rating.

Management Direction:

Modify grazing systems or use protective fences, as needed, to prevent further degradation of and to aid in the recovery of the Virgin River riparian areas determined to have good recovery potential.

Use protective fencing, as needed, and provide alternative water sources and/or locations to prevent further degradation of and aid in the recovery of spring-associated riparian areas.

Establish the following criteria for water utilization of springs and associated riparian areas (25 percent of spring flow will be allocated for wild horses and burros if no livestock grazing occurs and vice versa):

a. 50 percent of spring flow for riparian health
b. 25 percent of spring flow for wildlife
c. 15 percent of spring flow for wild horses and burros
d. 10 percent of spring flow for livestock

Establish a 50 percent overall utilization standard for riparian vegetation.

Complete as many as five spring-associated riparian projects annually.

Complete the SRA inventory of riparian areas by 1995.

VISUAL RESOURCE MANAGEMENT

Objectives:

Retain the existing character of the landscape on 1,125,415 acres of public lands.

Partially retain the existing character of the landscape on 1,867,657 acres of public lands.

Provide for management activities which require major modification of the existing character of the landscape on 678,055 acres of public lands (see Map 2-1).

Management Direction:

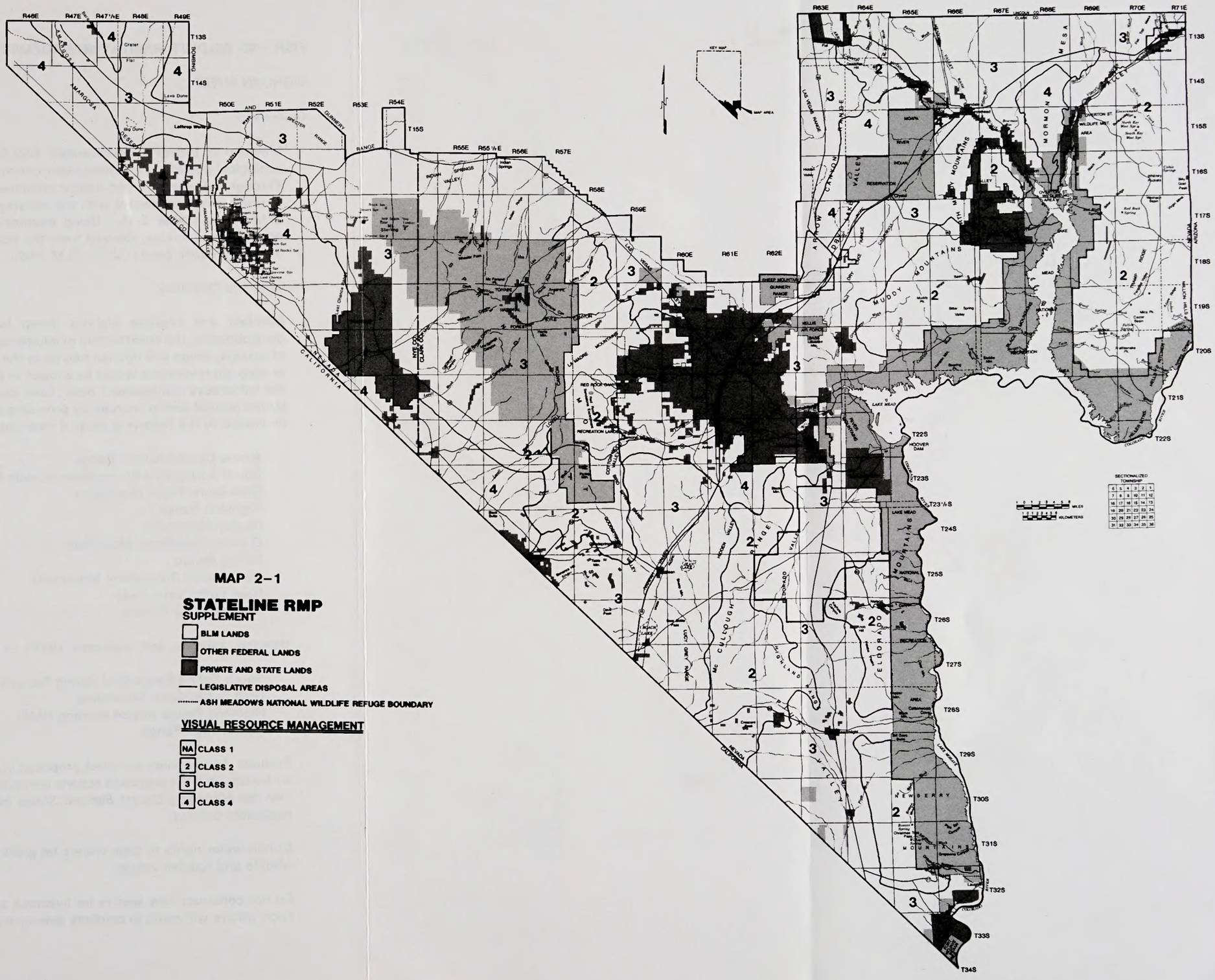
Designate 1,125,415 acres of public lands as VRM Class II and manage for the retention of the existing character of the landscape (see Map 2-1).

Designate 1,867,657 acres of public lands as VRM Class III for the partial retention of the existing character of the landscape (see Map 2-1).

Designate 678,055 acres of public lands as VRM Class IV to allow management activities which require major modification of the existing character of the landscape (see Map 2-1).

Do not designate any VRM Class I areas in SRA; areas Congressionally designated as wilderness will automatically be managed as VRM Class I.

Update the VRM inventory of SRA lands to refine the database. Adjust designations through a plan amendment, to conform with new data.



MAP 2–1

STATELINE RMP
SUPPLEMENT

- BLM LANDS
- OTHER FEDERAL LANDS
- PRIVATE AND STATE LANDS
- —— LEGISLATIVE DISPOSAL AREAS
- ····· ASH MEADOWS NATIONAL WILDLIFE REFUGE BOUNDARY

VISUAL RESOURCE MANAGEMENT

- NA CLASS 1
- 2 CLASS 2
- 3 CLASS 3
- 4 CLASS 4

FISH AND WILDLIFE HABITAT MANAGEMENT

BIGHORN SHEEP

Objectives:

Maintain or improve approximately 869,800 acres of current and potential habitat toward full ecological potential or desired plant community, in a manner consistent with other BLM policies. Through management and habitat enhancement projects, allow desert bighorn sheep populations to reach levels consistent with the carrying capacity of their habitat, where consistent with other BLM policy (Table 2-1). Using monitoring data, adjustments will be made in the potential population estimates, derived from the *Rangewide Plan for Managing Habitat of Desert Bighorn Sheep on Public Lands* (USDI, BLM 1988).

Management Direction:

Maintain and improve bighorn sheep habitat through the maintenance of existing water developments, the construction of additional water developments, and the protection/improvement of springs, seeps and riparian habitat in the following areas. Where applicable, any water, spring, or seep improvements would be subject to *Interim Management Policy*, wilderness legislation, and the wilderness management plan. Limit competition between bighorn, livestock, wild horses and burros around spring sources by providing separate water sources for wildlife. Activities will not be limited to the following areas if new data indicates the need for improvements in other areas.

Arrow Canyon/Elbow Range
South Spring/Bird Spring Range/Devils Peak
Gold Butte/Virgin Mountains
Highland Range
Muddy Mountains
Eldorado/Newberry Mountains
Spring Range
McCullough Range/Bare Mountains
New York/Castle Peak
Specters/Last Chance

Develop, approve, and implement HMPs for the following habitat areas.

South Spring Range/Bird Spring Range/Devils Peak
Gold Butte/Virgin Mountains
Highland Range (revise existing HMP)
McCullough Range

Evaluate discretionary activities proposed in bighorn sheep habitat on a case-by-case basis. Grant authorization if the proposed actions are consistent with the goals and objectives of the *Rangewide Plan for Managing Desert Bighorn Sheep Habitat on Public Lands* (USDI, BLM 1988) and other applicable policies.

Obtain water rights to base waters on grazing allotments which are closed and manage these for wildlife and riparian values.

Do not construct new waters for livestock and wild horses and burros in bighorn sheep habitat if such waters will result in conflicts among livestock, wild horse and burro use, and bighorn sheep.

Table 2-1. Bighorn sheep Habitat Management Areas.

Habitat Management Area	Potential population
Arrow Canyon Range	396
South Spring Range/Bird Spring Range	708
McCullough Mountains	734
Highland Range	134
El Dorado Mountains	742
Muddy Mountains	505
Newberry Mountains	169
River Mountains	207
Virgin Mountains	484
New York/Castle Peak	140
Gold Buttes	671
Last Chance Range	129-157
Specter Range	116-142
Bare Mountains	86-105
Total	5,221-5,294

(Source: *Rangewide Plan for Managing Bighorn Sheep on Public Lands* USDI, BLM 1988).

Do not authorize domestic sheep grazing in allotments which contain bighorn sheep habitat.

Prevent undue and unnecessary degradation of bighorn sheep habitat due to mineral-related exploration and development by implementation of the following stipulations:

Allow no new road construction or siting of ancillary facilities in lambing habitat.

Require mineral operators to mitigate impacts to bighorn sheep.

Monitor bighorn sheep habitat on a 1 to 3 year cycle, depending upon use levels. If average utilization on key forage species exceeds 40 percent, utilization will be read annually and frequency trend studies will be established and read on a 5 year cycle. Select areas where bighorn sheep, livestock, and wild horse or burro use overlaps and areas used exclusively by bighorn sheep for monitoring studies. Monitoring will be conducted to determine accomplishment of goals established in the RMP, HMPs and the *Rangewide Plan for Managing Habitat of Desert Bighorn Sheep on Public Lands* (USDI, BLM 1988).

Designate the River Mountains as an ACEC to provide additional protection to the habitat of a herd of bighorn sheep managed to provide transplant stock for augmentation and reintroduction of desert bighorn sheep populations throughout the Southwestern U.S (see Map 2-10).

DESERT TORTOISE

Objectives:

Manage desert tortoise habitat to achieve the recovery criteria defined in the *Recovery Plan for the Desert Tortoise (Mojave Population)* (USFWS 1993) and ultimately to achieve delisting of the desert tortoise.

Criterion 1: As determined by a scientifically credible monitoring plan, the population within a recovery unit exhibits a statistically significant upward trend toward target population density or remains stationary at target density for at least 12 years (one half of a tortoise generation).

Criterion 2: Enough habitat must be protected within a recovery unit, and/or the habitat and desert tortoise populations must be managed intensively enough, to ensure long-term population viability.

Criterion 3: Regulatory mechanisms or land management commitments have been implemented that provide for adequate long-term protection of desert tortoises and their habitat, such as those described in sections II.D. and E. of the *Recovery Plan for the Desert Tortoise (Mojave Population)* (USFWS 1993).

Criterion 4: The population in the recovery unit is unlikely to need protection under the *Endangered Species Act* in the foreseeable future.

Manage a sufficient quality and quantity of desert tortoise habitat, which in combination with tortoise habitat on other Federal, State and private land, will support a target population size of 50,000 adult tortoises each, in both the Northeastern Mojave and Eastern Mojave recovery units.

Continue management of the Desert Tortoise Conservation Center as a major desert tortoise research facility and expand the function of the Center to include an environmental education/awareness program in close coordination with other Federal agencies and State and local governments.

Management Direction:

1. Designate the following Desert Wildlife Management Areas (DWMAs) as Areas of Critical Environmental Concern (ACECs) (see Table 2-2 and Map 2-10). ACECs/DWMAs should cumulatively be large enough to support a minimum population of 20,000 adult desert tortoises in each recovery unit. In combination with tortoise habitat on other Federal and State land, ACECs should be of sufficient size and quality of habitat to support a tortoise population of 50,000 adult tortoises.

2. The following management actions will apply to all DWMAs designated as ACECs.

   a. Minimize impacts to tortoise habitat during fire suppression by minimizing the use of mechanized equipment and where possible, staying on existing roads and trails.

   b. Manage for zero wild horses and burros within tortoise ACECs/DWMAs.

   c. Implement inventory, monitoring and research projects dealing with management issues within desert tortoise ACECs/DWMAs. This includes implementing a livestock grazing study either within or outside the ACECs/DWMAs.

Table 2-2. Proposed ACECs/DWMAs-Alternative E.

ACEC/DWMA	BLM ACRES	SPECIAL FEATURES
Gold Butte	314,225	Desert tortoise, bighorn sheep, California bearpaw poppy, Devil's Throat Traditional Lifeways values
Mormon Mesa	136,150	Desert tortoise, bighorn sheep, candidate plant species
Arrow Canyon/ Coyote Springs	77,500	Desert tortoise, bighorn sheep, cultural sites, candidate plant species
Piute/Eldorado Valley	270,063	Desert tortoise, bighorn sheep bicolored penstemon, candidate species, cultural sites
Total acres	**797,938**	

d. Limit utility corridors to 3,000 feet or less in width.

e. Allow administrative withdrawals or public land orders for the purpose of facilitating ACEC management and/or construction of public information/education facilities.

f. Allow no new landfills; close existing landfills by December 31, 1995.

g. Do not authorize military maneuvers.

h. Allow development of camp grounds only if consistent with the objectives of the *Recovery Plan for the Desert Tortoise.*

i. Allow modification of ACEC/DWMA boundaries as needed to resolve unforeseen conflicts. Final ACECs may be slightly smaller or larger than those proposed in the Draft Stateline RMP.

j. Allow recreation concession leases on a case-by-case basis consistent with the recovery of the desert tortoise.

k. As opportunities arise, fence major highways with tortoise-proof fencing and install culverts to allow tortoises to cross under the highway.

l. Inventory special status animal species and take appropriate management actions such as protective withdrawals from mineral and land laws, fencing, and closure to OHV use.

m. Require reclamation of activities which result in loss or degradation of tortoise habitat, with habitat to be reclaimed to pre-disturbance condition. Reclamation may include salvage and transplant of cactus and yucca, recontouring the area, scarification of compacted soil, soil amendments, seeding, and transplant of seedling shrubs. Extensive monitoring will be

conducted to determine the success of the reclamation. If necessary a second seeding or transplanting effort will be made, should monitoring indicate that the original effort was not successful.

n. Do not allow livestock grazing unless it is part of an authorized grazing study.

o. Do not allow "speed" OHV competitive events or OHV free-play. In Meadow Valley Wash, allow one competitive event annually on the Meadow Valley Wash road.

p. Designate routes as "Limited to designated roads and trails".

q. Allow non-speed OHV competitive events, non-OHV events, non-competitive OHV events and commercial permitted events on a case-by-case basis consistent with the objectives of the *Recovery Plan for the Desert Tortoise*.

r. Allow mineral exploration and development on a case-by-case basis, provided that the cumulative impacts of these activities do not significantly impact desert tortoise habitats or populations. Require that impacts to desert tortoise populations and habitat from mineral exploration and developments be mitigated. Require reclamation of tortoise habitat as closely as possible to its pre-disturbance condition.

s. Continue to implement appropriate monitoring to evaluate trends in desert tortoise habitat condition and desert tortoise population trends.

t. Designate the Crescent Peak Allotment as an "Experimental Management Area" for the purpose of conducting a study on livestock grazing. If no grazing study is initiated by 1998, the area will revert to a "limited use" area.

3. Desert Tortoise Conservation Center

a. Withdraw approximately 11,617 acres on and adjacent to the Desert Tortoise Conservation Center from all public land laws and close the same to fluid mineral leasing, locatable minerals, non-energy leasables and mineral materials.

b. Within funding constraints, develop additional facilities where appropriate to further enhance the function of the Center as an environmental education/awareness and research facility.

OTHER SPECIAL STATUS SPECIES

Objectives:

Maintain or improve 37,078 acres of spring, wet meadow, and desert habitats to full ecological potential to protect the integrity of the Ash Meadows ecosystem and habitats of 26 special status species.

Maintain approximately 1,960 acres of sand dune habitat on Big Dune in a natural condition to support four candidate invertebrate species, three of which are endemic to the dunes.

Maintain or improve approximately 200 acres of aquatic and riparian habitat on the Virgin River from its existing poor to fair condition to good or better condition.

Maintain potential peregrine falcon habitat in the Spring and Virgin Mountains to provide suitable nesting sites.

Maintain spring flows and ground water levels in the Moapa Valley and Ash Meadows area to protect spring and aquatic habitat for special status species in the Moapa National Wildlife Refuge and Ash Meadows National Wildlife Refuge and ACEC.

Management Direction:

To the extent possible under BLM policy and Federal laws, comply with recovery plans for special status species, including the *Peregrine Falcon Recovery Plan, West Coast Region* (USDI, USFWS 1982); *Moapa Dace Recovery Plan* (USDI, USFWS 1983); *Recovery Plan for Woundfin (Plagopterus argentissimus) and Virgin River Chub (Gila robusta seminuda)* (USDI,USFWS 1993); *Ash Meadows Protection Plan* (USDI, USFWS 1984a); *Recovery Plan for the Desert Tortoise (Mojave Population)* (USDI, USFWS 1993); and other plans as they are developed.

Make 9,243 acres of BLM inholdings within Ash Meadows National Wildlife Refuge available for withdrawal by the USFWS for inclusion in the refuge.

Designate Ash Meadows Essential Habitat (37,078 acres), Big Dune (1,960 acres), and the Virgin River Floodplains (5,995 acres) as ACECs (see Map 2-10).

Prohibit BLM-authorized land uses which would result in unmitigated, significant adverse impacts to ground water levels or spring flows in the Moapa Valley and Ash Meadows National Wildlife Refuge/ACEC.

Inventory habitat in the planning unit for the presence of peregrine falcons. Identify nesting, hunting and wintering habitat. Sites which are unoccupied but suitable for occupancy or expansion by the peregrine should be identified; activities will not be limited to the Spring and Virgin Mountains if new knowledge or data indicates the need for management in other areas.

Prevent unnecessary and undue degradation of potential peregrine falcon habitat in the Spring Mountains and the Virgin Mountains through the implementation of the following actions or stipulations.

Upon discovery of nesting peregrines or introduction of peregrines into BLM-managed lands, develop habitat management plans for peregrine habitat.

The area within a 1/2 mile radius of active nests will be closed to human activity, to the extent possible, between Feb. 1 and Sept. 1 (or until nestlings fledge and nest is abandoned).

Prohibit the use of detrimental environmental pollutants which could accumulate in the peregrine and its food source for BLM-authorized activities in the Spring and Virgin Mountains.

Initiate a monitoring effort, in cooperation with NDOW and other interested parties, to determine numbers of nesting falcons and population trend over a period of several years.

Develop a cooperative agreement with the USFWS, the Peregrine Fund, NDOW and other concerned agencies or private organizations to explore the possibility of reintroducing peregrine falcons into suitable habitat in the Spring and Virgin Mountains.

OTHER WILDLIFE SPECIES

Objectives:

Maintain or improve crucial quail habitat (within 1.5 miles of water) to late seral stage, full ecological potential, or desired plant community. Maximize plant species diversity and perennial forage production to provide forage and cover for Gambel's quail.

Maintain or improve BLM lands toward desired plant community and maximum species diversity to provide a wide variety of habitats for all wildlife species.

Maintain or improve approximately 287,500 acres of mule deer habitat to mid-to late seral stage or desired plant community to support mule deer populations consistent with the carrying capacity of the habitat. Table 2-3 shows anticipated minimum population levels. Use monitoring data to make necessary adjustments in population levels.

Management Direction:

Maintain the existing upland game guzzlers. Allow construction of additional upland game guzzlers, as needed.

Strive to obtain water rights to springs and manage as natural riparian systems.

Eliminate tamarisk from springs and seeps where the potential for elimination is good. Revegetate the area with native plants to help reduce the potential for recolonization of tamarisk. Monitor these areas on an annual basis to ensure that tamarisk does not recolonize the area.

Identify and protect crucial deer habitat and fawning areas.

Manage mesquite and acacia habitat in the following areas for their value as wildlife habitat: Amargosa Valley area, Meadow Valley Wash, Pahrump Valley, Hiko Wash, Piute Wash, and Stump Springs.

Develop a habitat management plan for Meadow Valley Wash.

Emphasize protection and improvement of riparian habitat for its value as wildlife habitat. Manage for increased species diversity in forage and cover plants.

Identify key nesting areas, migration routes, important prey base areas, and concentration areas for birds of prey on public lands. Implement management programs on key habitats with significant raptor populations.

Incorporate raptor management objectives and actions in all habitat management plans which include

Assist NDOW in a raptor monitoring program and maintain an inventory of raptor habitats and populations.

Designate 6,080 acres as the Amargosa Mesquite ACEC.significant or key raptor habitat.

Table 2-3. Mule deer populations.

Mountain Range	Number
Spring Mountains	350-400
South McCullough Range	60-120
Newberry Range	30-60
Virgin Mountains	50-100
Gold Butte	36-72
Total	526-752

(Source: NDOW survey data).

Inventory and monitor *phainopepla* populations at Amargosa Valley Area, Stump Springs, Pahrump Valley, Hiko Wash, Piute Wash, Meadow Valley Wash and other areas determined to be important to *phainopepla*.

FORESTRY MANAGEMENT

Objectives:

Provide approximately 800 acres of mesquite woodland in T. 21 S, R. 52 E and 53 E for firewood gathering.

Maintain pinyon-juniper woodland and conifer forest where possible for all-aged stands, with an understory vegetation forage value rating at moderate or better.

Provide for salvage sale/harvest of desert vegetation and other vegetative resources from areas of public lands which will sustain surface-disturbing activities, upon completion of compliance-related inventories and consultation.

Provide for collection of other vegetative resources, as stated in BLM Manual 5500 *Nonsale Disposal under Recreation Use*.

Management Direction:

Develop a woodlands management plan and stipulations designed to protect sensitive resources in mesquite woodlands.

All public lands in SRA will be open for salvage harvest of desert vegetation at those locations where surface-disturbing activities will occur.

Allow the harvest of dead and down wood or BLM-marked green mesquite "trees" for dwarf mistletoe control only in the areas identified above. The remainder of the planning area will not be managed for the harvest of any types of forest products.

Limit firewood gathering to one cord per household per calendar year only from approved areas.

LIVESTOCK GRAZING MANAGEMENT

Objectives:

Designate allotments meeting defined criteria as either perennial or ephemeral-perennial and set preference, as shown in Table 2-4.

Manage the perennial range resource consistent with the botanical and physiological requirements of the key perennial species.

Manage ephemeral-perennial or perennial allotment and riparian areas consistent with management objectives.

Establish rest and/or deferment principles in any AMP/grazing system, consistent with desert rangeland requirements.

Maintain or improve the ecological condition of the vegetative community on public lands with potential to improve, and available for livestock grazing, to a desired plant community or to Potential Natural Community within 20 years.

Provide for increased plant vigor and reproductive capability of perennial forage on the public rangelands through livestock grazing management.

Maintain static trend or achieve upward trend of key perennial forage species through livestock grazing management.

Provide for the continued grazing of domestic livestock on the public lands consistent with law, regulation and policy.

Develop range improvements needed to reach more uniform distribution of livestock consistent with management objectives.

Close all grazing allotments in the planning unit except for the following:

Hidden Valley, Mount Stirling, Lower Mormon Mesa, Lucky Strike, Roach Lake, White Basin, Wheeler Wash, Mesa Cliff, Arrow Canyon in Battleship Wash, Flat Top Mesa, and Jean Lake Allotments (see Maps 2-2 and 2-10a for locations and boundaries).

Management Direction:

Reclassify 14 allotments from Ephemeral to Ephemeral-Perennial (Table 2-4).

Reclassify seven allotments from Ephemeral to Perennial (Table 2-4).

Establish Preference for each allotment based on the average use for the past 10 years. Use authorizations will be based on the *Recovery Plan for Desert Tortoise*, Section 7 consultation under the *Endangered Species Act*, physiological requirements of key perennial species, and riparian management objectives.

Authorize indefinite non-use on allotments, purchased under provisions of the Clark County Habitat Conservation Plan, which are not contained in ACECs/DWMAs.

Table 2-4. Proposed Classification and Active Preference AUMs.

ALLOTMENT NAME	CLASSIFICATION	ACTIVE PREFERENCE (AUMs)
*ARROW CANYON	EP	196
**BILLY GOAT PEAK	EP	1497
**BUNKERVILLE	EP	2844
*FLAT TOP MESA	EP	73
**GOLD BUTTE	EP	3297
**HEN SPRINGS	EP	744
*HIDDEN VALLEY	EP	461
**IRETEBA PEAKS	EP	1538
#KYLE CANYON	P	0
*LOWER MORMON MESA	EP	371
*LUCKY STRIKE	P	205
#MESA CLIFF	EP	87
#ROACH LAKE	EP	195
**ROX	EP	179
#SPRING MOUNTAIN	P	0
#TABLE MOUNTAIN	P	0
**UPPER MORMON MESA	EP	261
#WHEELER SLOPE	P	0
#WHEELER WASH	P	661
#WHITE BASIN	EP	591
#YOUNTS SPRING	P	0

* Active allotment, not closed by critical habitat
** Active allotment, would be closed by critical habitat
# Inactive allotment

Mt. Stirling Allotment - 1500 Active AUMs (existing)
Jean Lake Allotment- 2400 Active AUMs (estimate)

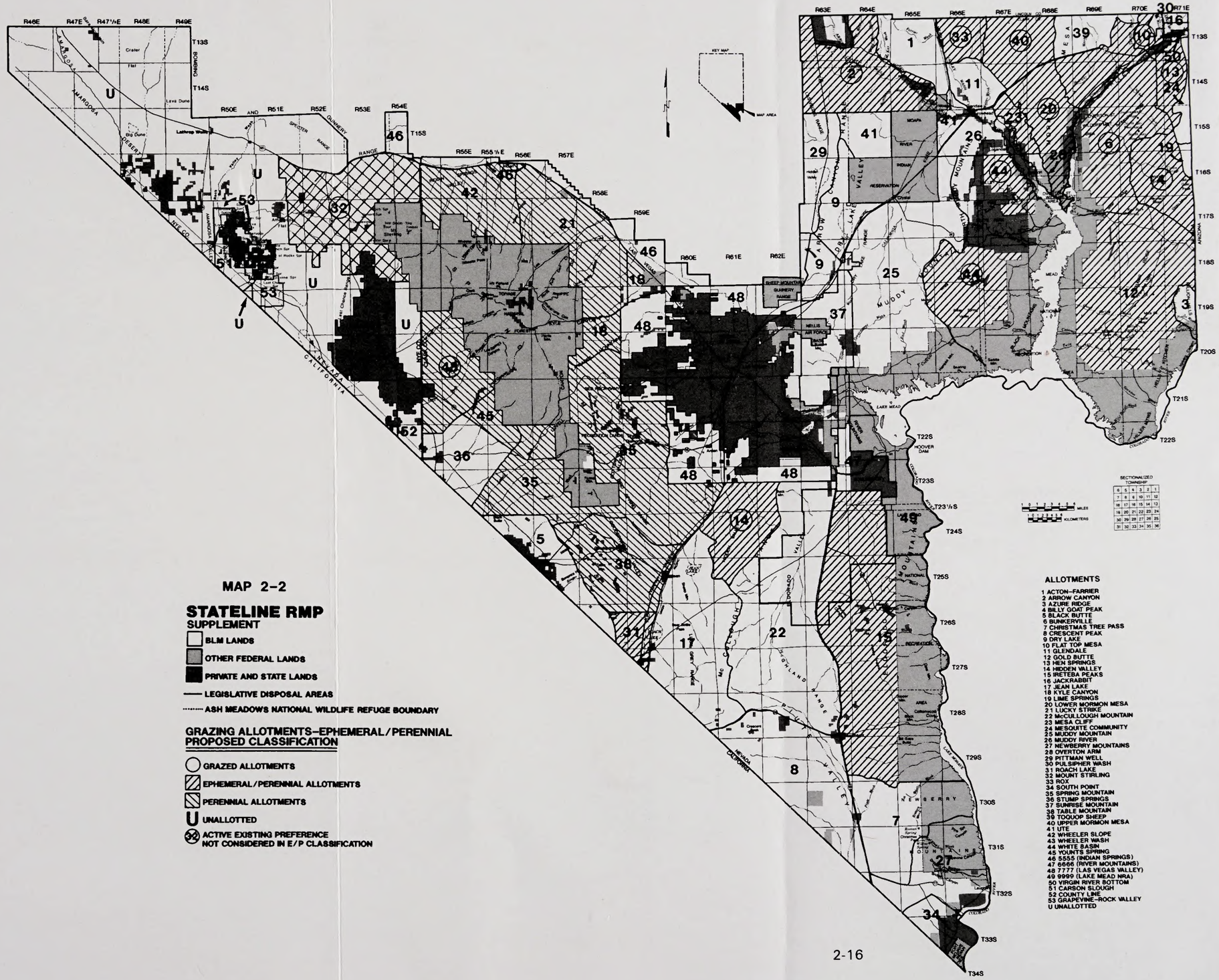
Do not authorize grazing on any inactive Ephemeral-Perennial or Perennial allotment unless grazing systems are in place which provide for protection and management of the perennial species and riparian areas. The following specific requirements are prerequisites to grazing authorization:

a. Completion of an Allotment Management Plan or livestock grazing agreement incorporating all multiple-use and ecosystem needs.

b. Completion of an Environmental Analysis (EA).

Manage all grazing in tortoise habitat outside the ACECs/DWMAs under Prescription 2 of the Biological Opinion. Reconsult with the U.S. Fish and Wildlife Service to modify the Prescription 2 criteria to read as follows:

Prescription 2: Livestock use may occur on open allotments in desert tortoise habitat outside ACECs/DWMAs from March 1 to October 14, as long as forage utilization does not exceed 40 percent on key perennial grasses, forbs, and shrubs. Between October 15 and February 28,



MAP 2-2

STATELINE RMP
SUPPLEMENT

- BLM LANDS
- OTHER FEDERAL LANDS
- PRIVATE AND STATE LANDS
- —— LEGISLATIVE DISPOSAL AREAS
- ····· ASH MEADOWS NATIONAL WILDLIFE REFUGE BOUNDARY

GRAZING ALLOTMENTS–EPHEMERAL/PERENNIAL PROPOSED CLASSIFICATION

- GRAZED ALLOTMENTS
- EPHEMERAL/PERENNIAL ALLOTMENTS
- PERENNIAL ALLOTMENTS
- U UNALLOTTED
- (32) ACTIVE EXISTING PREFERENCE NOT CONSIDERED IN E/P CLASSIFICATION

forage utilization will not exceed 50 percent on key perennial grasses and 45 percent on key shrubs and perennial forbs.

Include water availability for all uses in any AMP/grazing system, considering riparian areas, livestock, wildlife, wild horses and burros.

Kind of Livestock

The kind of livestock that will be authorized on each allotment is identified in Table 2-5.

Season of Use

The season of use on all allotments is subject to the desert tortoise restrictions discussed below.

Grazing Management Actions

Utilization of key forage species are described under Prescription 2 above. All allotments which are not closed to livestock grazing under this alternative are scheduled for development of allotment management plans (AMPs) or grazing systems. AMPs may be minimal in nature, detailing management, grazing schedules, season(s) of use, and the development of range improvements. Until AMPs are developed, water location/availability is being used to control livestock use in many of the allotments. Controlling season of use by livestock is the most effective method of protecting the vegetative resource by allowing forage species to improve in vigor and begin reproductive functions. Range improvements, including but not limited to fences, corrals, cattleguards, pipelines, wells, spring developments, troughs and earthen reservoirs, will be needed in many allotments to facilitate management of livestock. The need, number and type of range improvement will be established as allotment management plans are developed.

Use fire management (controlled burning) and/or mechanical treatment of undesirable vegetation to improve/increase forage production on the public range, where practicable and feasible. Where technically feasible, rehabilitate areas where vegetation has been destroyed.

Use Adjustment Criteria

Use adjustments for all allotments will be based on results of monitoring studies and determinations made through the allotment evaluation process, as specified in the *Nevada Rangelands Monitoring Handbook* (NRSTF 1984), BLM Grazing Handbooks, Regulations, and Policy, and as further detailed below.

Utilization monitoring studies in ephemeral allotments or portions of allotments will be conducted at least once every 3 months during the active grazing period to determine utilization levels and potential availability of forage for the next license period. Utilization studies will be conducted at least twice annually in other classified allotments (once in late summer or early fall, and once at the end of the plant dormant period just prior to spring green up). These studies will be conducted at existing key areas. In allotments without established key areas, new key areas will be located by range and wildlife specialists. These new key areas will be established within one mile from reliable waters where possible and consistent with overall management objectives. If existing key areas are insufficient to adequately monitor potential impacts of grazing on forage resources, additional utilization studies may be added, as determined by an inter-disciplinary team of range and wildlife specialists. These include specific criteria and monitoring for riparian areas. Plant species composition represented in the general habitat area should be included in each key area.

Table 2-5. **Kind of livestock - Alternative E.**

Horses & Cattle	Cattle
Flat Top Mesa	Arrow Canyon
Lower Mormon Mesa	Jean Lake
Mesa Cliff	Hidden Valley
	Lucky Strike
	Mt. Stirling
	Roach Lake
	Wheeler Wash
	White Basin

Use pattern mapping will also be conducted on an annual basis. Range monitoring studies will only be conducted on active allotments.

WILD HORSE AND BURRO MANAGEMENT

Objectives:

Achieve and maintain healthy, genetically viable herds of wild horses and/or burros (minimum of 50 head) within the Herd Management Areas (HMAs) in a natural, thriving ecological balance with other rangeland uses. A thriving ecological balance occurs when: 1) use of key perennial forage species (outside of desert tortoise habitat) within HMAs does not exceed 50 percent for grasses and 45 percent of current year's growth for shrubs and forbs; 2) forage plant species exhibit static or apparent upward trend; 3) sufficient water is available for the number of animals found in the HMA; and 4) the wild horses and burros found in an area are in fair to good physical condition throughout the year.

Maintain or improve the habitat of wild horses and burros to the desired plant community or to PNC.

Maintain the wild, free-roaming character of the wild horses and burros on the public lands, not allowing barriers to be constructed within HMAs, consistent with BLM policy.

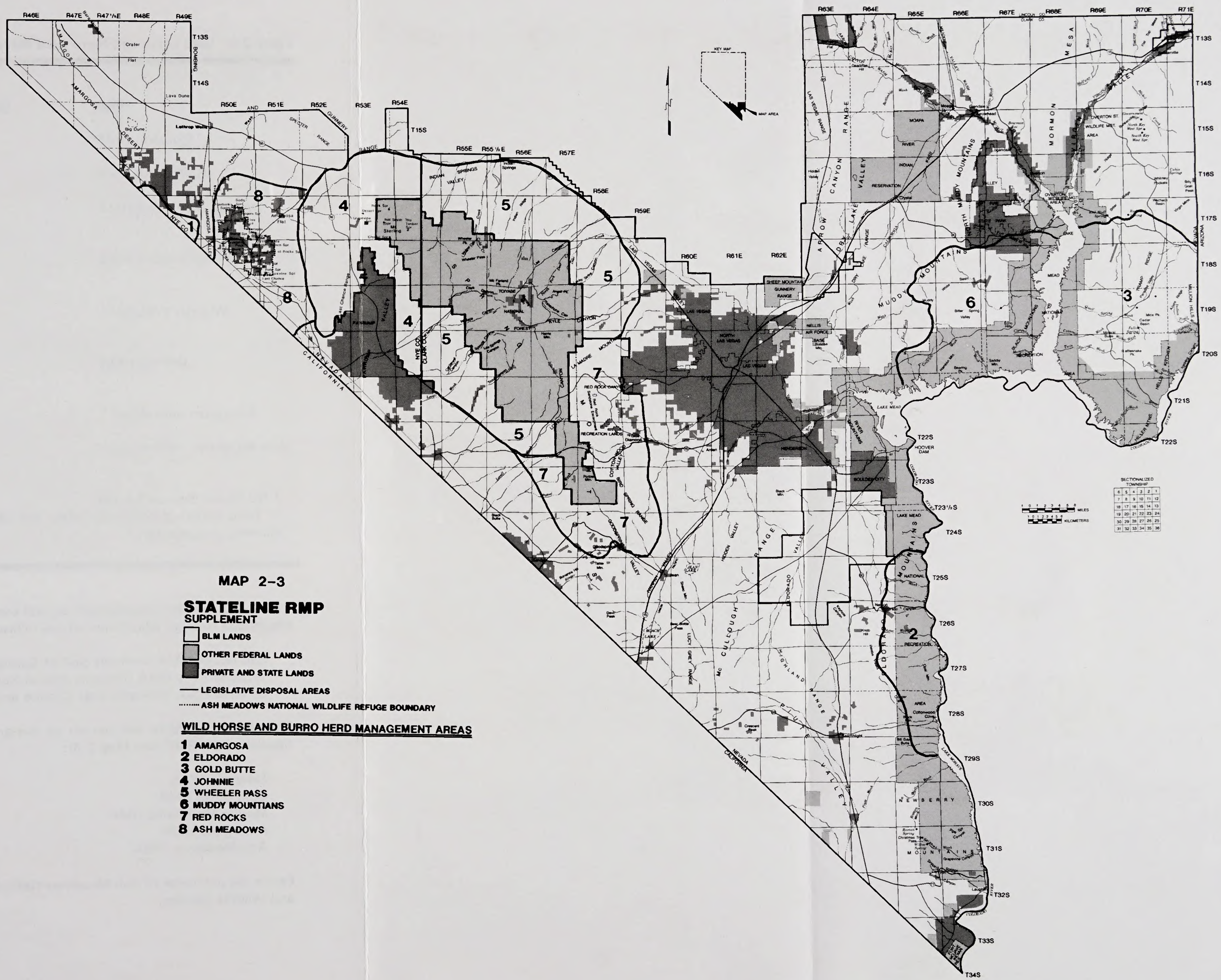
Establish Appropriate Management Levels (AML) within HMAs (see Table 2-6).

Management Areas:

Wild horse and burro herd management areas are shown on Map 2-3.

Management Direction:

Limit utilization of current year's production by all herbivores on key perennial forage species within HMAs to 50 percent for grasses and 45 percent for shrubs and forbs.


MAP 2-3
STATELINE RMP
SUPPLEMENT
BLM LANDS
OTHER FEDERAL LANDS
PRIVATE AND STATE LANDS
LEGISLATIVE DISPOSAL AREAS
ASH MEADOWS NATIONAL WILDLIFE REFUGE BOUNDARY
WILD HORSE AND BURRO HERD MANAGEMENT AREAS
1 AMARGOSA
2 ELDORADO
3 GOLD BUTTE
4 JOHNNIE
5 WHEELER PASS
6 MUDDY MOUNTIANS
7 RED ROCKS
8 ASH MEADOWS
KEY MAP
MAP AREA
SECTIONALIZED TOWNSHIP
MILES
KILOMETERS
R46E
R47E
R47½E
R48E
R49E
R50E AND R51E
R52E
R53E
R54E
R55E
R55½E
R56E
R57E
R58E
R59E
R60E
R61E
R62E
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T17S
T18S
T19S
T20S
T21S
T22S
T23S
T23½S
T24S
T25S
T26S
T27S
T28S
T29S
T30S
T31S
T32S
T33S
T34S
NEVADA
CALIFORNIA
ARIZONA
NYE CO
CLARK CO
LINCOLN CO
AMARGOSA DESERT
Lathrop Wells
Crater Flat
Lava Dune
Big Dune
SPECTER RANGE
GUNNERY RANGE
INDIAN SPRINGS VALLEY
TOIYABE NATIONAL FOREST
Mt Sterling
Wheeler Pass
PAHRUMP VALLEY
LA MADRE MOUNTAIN
RED ROCK CANYON
RECREATION LANDS
LAS VEGAS
NORTH LAS VEGAS
NELLIS AIR FORCE BASE
SHEEP MOUNTAIN GUNNERY RANGE
HENDERSON
BOULDER CITY
HOOVER DAM
LAKE MEAD
MOAPA RIVER INDIAN RESERVATION
MORMON MESA
OVERTON ST. WILDLIFE MGT. AREA
MUDDY MOUNTAINS
NORTH MUDDY MOUNTAINS
TRAMP RIDGE
ELDORADO
McCULLOUGH
HIGHLAND RANGE
PIUTE VALLEY
NEWBERRY MOUNTAINS
LAKE MOHAVE
COLORADO RIVER

Table 2-6. Wild horse and burro Herd Management Areas.

HMA	Current Herd Size	Estimated AML
Eldorado HMA	60 burros	0 burros
Gold Butte HMA	254 burros	0 burros
Muddy Mountains HMA	23 horses 13 burros	0 horses 50 burros
Red Rocks HMA	35 horses 60 burros	50 horses 60 burros
Wheeler Pass HMA	*80 horses *15 burros	*36 horses *16 burros
Johnnie HMA	75 horses 150 burros	50 horses 75 burros
Amargosa Herd Area**	0	0
Ash Meadows Herd Area**	0	0

* US Forest Service figures
** Herd Areas, based on zero AML. Ash Meadows HMA was inadvertently left out of previous planning documents.

Gain more specific management control over the wild horse and burro populations in the Spring Mountains through adjustment of the following HMAs in the area (see Map 2-3):

Red Rocks HMA (formerly part of Spring Mountains HMA)
Wheeler Pass HMA (formerly part of Spring Mountains HMA)
Johnnie HMA (formerly Last Chance and Mt. Stirling HMAs)

The following HMAs will remain as designated in the *Clark County* MFP and the *Esmeralda-Southern Nye* RMP (see Map 2-3):

Eldorado HMA
Gold Butte HMA
Muddy Mountains HMA
Amargosa HMA
Ash Meadows HMA

Fence the perimeter of Ash Meadows National Wildlife Refuge, in coordination with the U. S. Fish and Wildlife Service.

Coordinate herd management with the National Park Service and the U.S. Forest Service where HMAs extend across administrative boundaries.

Complete a management agreement with the U.S. Forest Service which will establish BLM lead for management and studies of the Red Rocks and Johnnie HMAs; U.S. Forest Service will have lead responsibilities for Wheeler Pass HMA.

Table 2-6 displays the current herd sizes and proposes Appropriate Management Level (AML) of wild horses/burros (adult animals) in each HMA/Proposed HMA or Herd Area. The AML for each HMA will be determined through monitoring of the animal population, forage, and water, riparian and other ecosystem management objectives.

Develop and maintain dependable water sources, where needed, to allow more even distribution of horses and burros throughout the HMAs. BLM must obtain water rights to the sources to ensure that adequate water will be available for the wild horses and burros.

Develop Herd Management Area Plans (HMAPs) for each active HMA, detailing AML, management criteria, water development, and removal criteria to maintain a viable gene pool.

Coordinate with affected interests and the Nevada Department of Transportation (NDOT) for the construction of underpasses when highways are fenced, to allow use of existing designated HMAs. Manage for zero AML in Amargosa and Ash Meadows Has.

Establish zero AML for Eldorado and Gold Butte HMAs.

Adjustment Criteria:

Animal adjustments will be made when use of key forage species in key areas reaches the appropriate level of the current year's growth for that species, as outlined in the *Nevada Rangeland Monitoring Handbook* (NRSTF 1984). Reductions in use will be proportioned between livestock, wild horses, and burros where combined use of the three species exceeds the allowable use. In areas where no livestock grazing is authorized, utilization will be lowered through reduction of the wild horse and burro AMLs.

Once an AML is established, the HMAP will identify a population management cycle of 3 to 5 years. The cycle will be used to manage herd size such that the numbers of animals over the 3 to 5 year period will average the AML. The herd size may be adjusted below the AML at the beginning of the cycle and allowed to increase above the AML until the prescribed cycle is completed. Excess animals will be removed at the end of the cycle to a level identified in the HMAP.

If the removal of livestock and wild horses and burros is required in the Muddy Mountains, Johnnie, and Wheeler Pass HMAs, such removals will be proportionate between the grazing users, as determined by monitoring studies, specifically utilization of key forage plants.

When the wild horses and burros become "problem animals" or traffic hazards on NV State Routes 159 and/or 160, they will be removed.

Wild horses and burros will be removed as expeditiously as possible from fenced private lands within the planning area, after a request is made by the private landowner and reasonable efforts to restrict the animals from private property have failed.

Wild horses and burros will be removed when herds have expanded beyond designated herd area boundaries or AML is exceeded.

Resource Constraints:

Any fence constructed within the planning area will consider the wild, free-roaming habits of the wild horses and burros and, if appropriate, will be authorized only when the wild, free-roaming character of the animals will not be constrained.

Any new water development within the HMAs, except water developed for culinary purposes and rainwater catchments for wildlife, will be made available for use by wild horses and/or burros.

In coordination with NDOT, consider constructing underpasses or other structures within highways rights-of-way, where conflicts arise, to allow safe passage of wild horses and burros.

Muddy Mountains HMA - Outside the Muddy Mtn. WSA, limit OHV use to existing roads, trails, and washes only.

Johnnie HMA - Limit OHV use to existing roads, trails, and washes.

Wheeler Pass HMA - Limit OHV use to existing roads, trails, and washes.

Red Rocks HMA - Outside Red Rock Canyon National Conservation Area, limit motor vehicle use to existing roads and trails only. Limit camping/day use to designated areas only.

Constraints on Wild Horses and Burros:

Grazing use in desert tortoise habitat will constrained by stipulations outside ACEC/DWMAs from March 15 to October 14, as long as forage utilization does not exceed 40 percent on key perennial grasses, forbs, and shrubs. Between October 15 and February 28, forage utilization will not exceed 50 percent on key perennial grasses and 45 percent on key shrubs and perennial forbs.

Wild Horse and Burro Ranges:

No wild horse or burro ranges are recommended for approval by the Director.

CULTURAL RESOURCE MANAGEMENT

Objective:

Identify and protect cultural and paleontological resources, in conformance with applicable legislation and BLM policy.

Management Direction:

Manage for information potential all roasting pit, camp/open lithic scatter, rock feature, and historic trash scatter site types. Representative samples of each site type would be preserved for conservation purposes.

Manage cultural resources on 1,500 acres of public lands within the Virgin River Anasazi prehistoric district for information potential or the ability to yield scientific, historic, or management information.

Manage for conservation potential those rockshelter, rock art, prehistoric and historic remains, mining sites, and historic road/trail site types located in areas that do not receive intensive recreational uses.

Manage cultural resources on 11,920 acres of public lands at Red Rock Spring and Stump Springs, the Hidden Valley district, the Bird Spring site, the Sloan rock art site, the Arden Historic Sites, the Crescent and Gold Butte mining town sites, and the South Virgin Peak Ridge District for conservation of their overriding scientific or historic importance.

Manage for public values, rockshelter, rock art, prehistoric and historic structural remains, mining sites, and historic road/trail site types located in areas that have sustained or are projected to receive intensive recreational uses.

Manage cultural resources on 3,660 acres of public lands within the Arrow Canyon Rock Art District, the Brownstone Canyon National Register District, and the Keyhole Canyon, Frenchman Mine and Gypsum Cave areas for their public values, including sociocultural, educational, and recreational values.

Manage cultural resources on approximately 250,000 acres of Traditional Lifeway Areas (see Map 2-4) within SRA, for their sociological public values by providing for their protection and preservation. Designate Traditional Lifeways Areas in the Spirit/Newberry Mountains, Virgin Mountains/Gold Butte and Sheep Mountains/North Las Vegas Range Wash regions. The designations are based on the identification of certain areas by Native American groups and individuals as important for the operation of their respective religions and lifeways. These areas include archeological features and materials, as well as specific plants and animals. Traditional Lifeway Areas are treated as properties eligible for nomination to the *National Register of Historic Places* and subject to consultation under Section 106 of the *National Historic Preservation Act.*

Manage paleontological resources on 12,000 acres of public lands within the Muddy Creek Formation and Eglington Escarpment paleontological districts for information potential or the ability to yield scientific, historic, or management potential.

Manage paleontological resources on 40 acres of public lands within the Arrow Canyon Bird Track paleontological site for conservation of its overriding scientific or historic importance.

Management Actions:

Cultural resources that have been determined eligible for nomination to the National Register of Historic Places and eligible for management for information potential should be subjected to the following direction:

Utilize data recovery efforts through research designs to help mitigate adverse effects to cultural resources and paleontological sites from proposed Federal actions.

Study known cultural and paleontological sites not expected to incur impacts from Federal actions through proactive research designs. The designs may be initiated by BLM or independent researchers and subject to the concurrence of BLM and SHPO.

Cultural resources that have been determined eligible for management for public values, and which may or may not be eligible for nomination to the National Register of Historic Places, should be subjected to the following direction.

Develop cultural resource activity plans that emphasize public interpretation.

The following linear and site-specific cultural resources should be designated as priorities for activity planning:

The route of the *Old Spanish Trail/Mormon Road*
The *Las Vegas-Tonopah Railroad* grade
Whitney Pocket archeological complex

Cultural resources that have been determined eligible for management for nomination to the National Register of Historic Places and for eligibility for conservation should be subjected to the following direction. If additional areas are designated by Native Americans or other parties as Traditional Lifeways Areas, they should also be managed for conservation.

Develop programs that use surveillance to monitor public uses. Where analysis of monitoring results indicates there is need for further protection, construct or install physical barriers, as appropriate.

The following cultural resources should be designated as priorities for activity planning:

Historic structural remains in Gold Butte, Crescent Peak, Goodsprings, and Searchlight mining districts.

Hidden Valley Archeological District (Muddy Mountains).

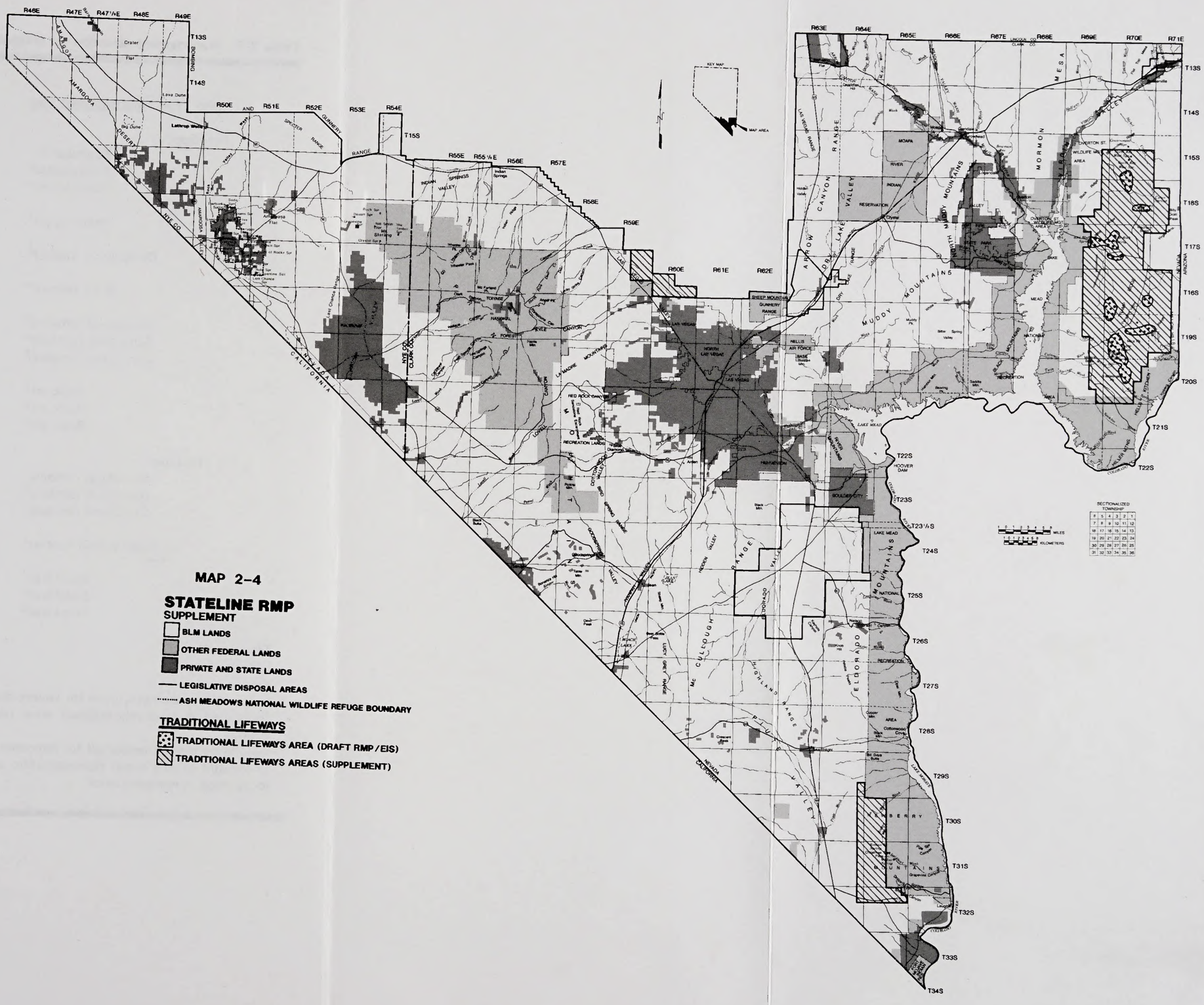
Special cultural resource considerations that may affect the location, timing, or method of development or use of other resources in the planning area include the following.

Plants or animals whose presence are integral to the integrity of a Traditional Lifeway Area or in critical stages of their life cycle.

Release cultural resource sites designed for "management for conservation" only after the development of a Memorandum of Agreement among BLM, SHPO, and the Advisory Council on Historic Preservation, prepared in accordance with 36 CFR 800.5 which details efforts to conduct intensive documentation or retrieve the physical remains of the property.

Release paleontological sites designated for "management for conservation" uses only after the development of a research design approved by BLM to remove the specimens, create casts of the objects, and provide interpretive exhibits.

Archeological site types should be managed for appropriate uses according to the prescriptions displayed in Table 2-7.



MAP 2-4

STATELINE RMP
SUPPLEMENT

- BLM LANDS
- OTHER FEDERAL LANDS
- PRIVATE AND STATE LANDS
- LEGISLATIVE DISPOSAL AREAS
- ASH MEADOWS NATIONAL WILDLIFE REFUGE BOUNDARY

TRADITIONAL LIFEWAYS

- TRADITIONAL LIFEWAYS AREA (DRAFT RMP/EIS)
- TRADITIONAL LIFEWAYS AREAS (SUPPLEMENT)

Table 2-7. Management direction for archaeological site types and cultural resources in SRA.

Site Type	Management Use	Prescription
Prehistoric		
	Rockshelter[1]	Information Data recovery plan
	Rockshelter[2]	Conservation Monitoring/protection
	Rockshelter[3]	Public Uses Activity plan
	Roasting pit[4]	Information Data recovery plan
	Camp/lithic scatter[4]	Information Data recovery plan
	Rock feature[4]	Information Data recovery plan
	Structural remains[1]	Information Data recovery plan
	Structural remains[2]	Conservation Monitoring/protection
	Structural remains[3]	Public Uses Activity plan
	Rock art[1]	Information Data recovery plan
	Rock art[2]	Conservation Monitoring/protection
	Rock art[3]	Public Uses Activity plan
Historic		
	Structural remains[1]	Information Data recovery plan
	Structural remains[2]	Conservation Monitoring/protection
	Structural remains[3]	Public Uses Activity plan
	Trash/debris scatter[4]	Information Data recovery plan
	Road/trail[1]	Information Recordation
	Road/trail[2]	Conservation Monitoring/protection
	Road/trail[3]	Public Uses Activity plan
Traditional Lifeway Areas		Conservation Monitoring Native Amer. consultation

Key:
[1] = located in area proposed for severe disturbance or total destruction from Federal actions
[2] = located in relatively isolated area, not projected for intensive recreational uses or Federal actions
[3] = located in area projected for intensive recreational uses
[4] = located in any area; representative samples for conservation previously selected in some location(s) in resource area

LANDS MANAGEMENT

Objectives:

Identify approximately 111,000 acres of public lands as available for disposal through sale, exchange, color-of-title or R&PP patent to provide for the orderly expansion and development of southern Nevada and meet the public service needs of individual communities within the planning area.

Management Direction:

Encourage local government and private individuals to purchase environmentally sensitive lands or lands rich in valuable resources which could be exchanged for public lands, thus enhancing Federal land management.

Resolve unauthorized agricultural use or other unauthorized occupancy of the public lands by whatever applicable authority provides the greatest benefit to the public.
Do not allow disposal of public lands through *Indian Allotment*, *Desert Land Entry* or *The Carey Act* authorization.

Where appropriate and determined to be in the interest of the United States, resolve unauthorized use of public lands by sale, exchange, color-of-title or R&PP patent.

Retain all public lands within designated corridors.

Disposal Areas:

The location of Section 203 disposal areas and lands available for disposal by exchange, color-of-title or R&PP patent are shown on Map 2-5 and include the areas shown in Table 2-8 (acres were calculated to scale with a planimeter and rounded to the nearest whole number).

Other public lands presently available for disposal through sale only have been identified through special legislation. The location of legislative disposal areas are shown on Map 2-5 and include the following:

P.L. 101-67, Apex Project, *Nevada Land Transfer and Authorization Act* -16,867 acres
P.L. 85-339, *Eldorado Valley Act* Lands - 107,000
P.L. 73, *Henderson Sale Area* - 188 acres
P.L. 522, *Henderson Sale Area* - 80 acres

Land Use Authorizations:

Upon termination, expiration, or relinquishment of the public land lease area authorized to Aerojet Corporation through P.L. 100-275, the lands involved will be retained in federal ownership and added to the Arrow Canyon/Coyote Springs ACEC/DWMA.

No airport leases will be authorized within ACECs/DWMAs.

Airport lease applications will be addressed on a case-by-case basis.

If applicable, special terms and conditions regarding use of the lands involved will be developed on a case-by-case basis through the Stateline Resource Area review process.

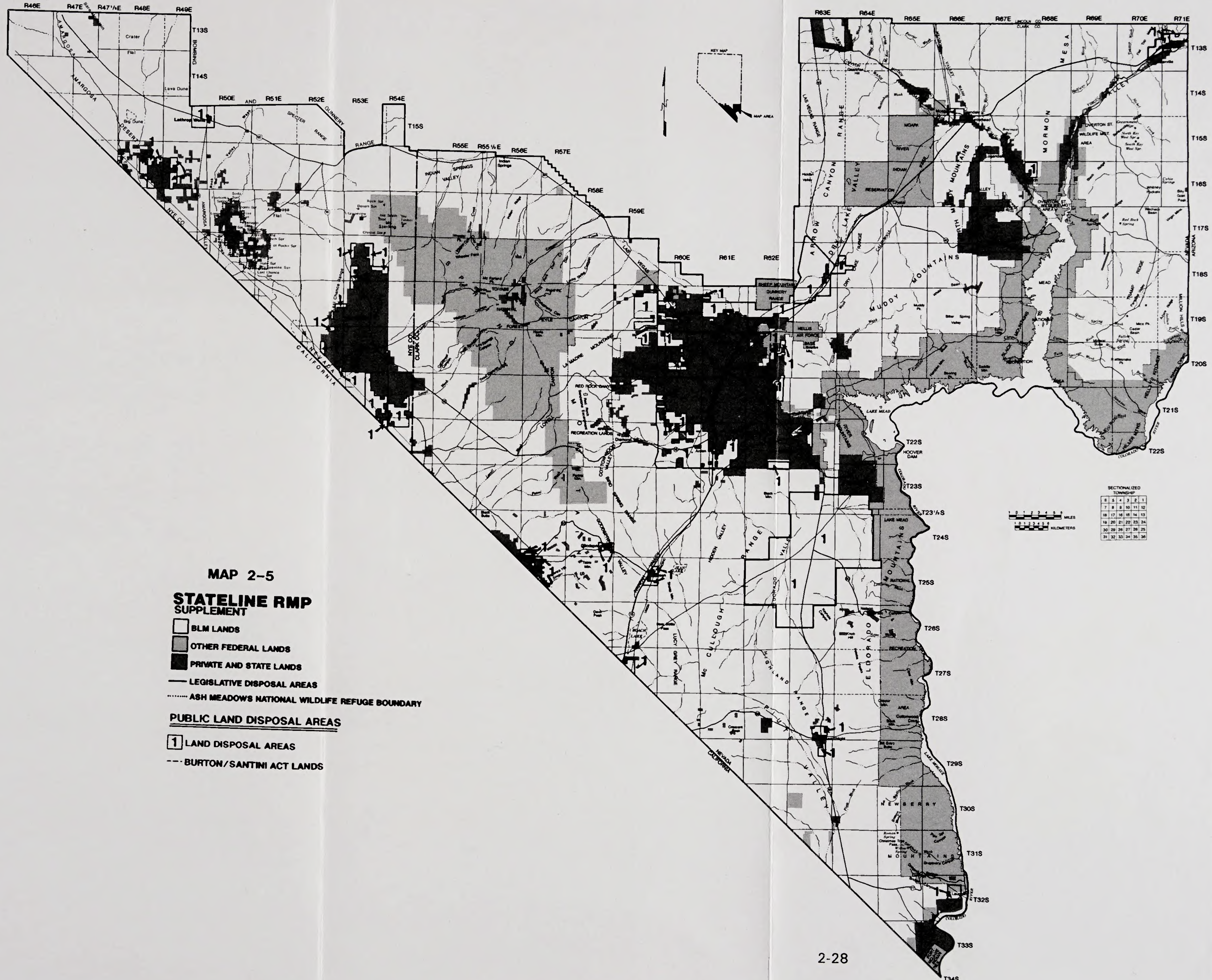

MAP 2-5
STATELINE RMP
SUPPLEMENT
BLM LANDS
OTHER FEDERAL LANDS
PRIVATE AND STATE LANDS
LEGISLATIVE DISPOSAL AREAS
ASH MEADOWS NATIONAL WILDLIFE REFUGE BOUNDARY
PUBLIC LAND DISPOSAL AREAS
1 LAND DISPOSAL AREAS
BURTON/SANTINI ACT LANDS
KEY MAP
MAP AREA
SECTIONALIZED TOWNSHIP
MILES
KILOMETERS

Table 2-8. Disposal areas - Alternative E.

Disposal Areas	Acres
Amargosa	5,020
Glendale	1,854
Goodsprings	716
Jean	1,106
Las Vegas Valley	69,771
Lathrop Wells	5,092
Laughlin	2,240
Mesquite	2,600
Overton	1,665
Pahrump	17,188
Sandy	1,128
Searchlight	2,223
Stateline	960
Total	**111,563**

Land Classifications/Segregations:

Valid Existing Management (see Appendix I in the *Draft RMP/EIS*)

Proposed Classifications/Segregations (see Appendix I in the *Draft RMP/EIS*)

Withdrawals:

Valid Existing Management (see Appendix I in the *Draft RMP/EIS*)

Proposed Withdrawals:

Big Dune ACEC
Crescent Mining Townsite ACEC
Gold Butte ACEC/DWMA
Rainbow Gardens ACEC
Arden Historic Sites ACEC

NATURAL AREAS MANAGEMENT

See **SPECIAL MANAGEMENT AREAS** for **NATURAL AREAS MANAGEMENT**

RECREATION MANAGEMENT

Objectives:

To ensure that a full spectrum of recreation opportunities are available for all recreation users.

Management Direction:

Identify areas of high recreational use or potential as Special Recreation Management Areas (SRMAs) to guide future recreation management priorities and to provide a broad spectrum of recreational opportunities.

Evaluate recreational values within SRMAs when making land use decisions; mitigate conflicts with other resource values while emphasizing potential recreational opportunities of the area.

Satisfy user demand for recreation sites, structures, intensive OHV play areas, developed shooting areas, and other intensive recreation uses, while maintaining opportunities for less development-dependent uses such as back-packing, camping, hunting, backcountry driving, mountain biking, and wildlife photography.

Establish recreation designations which reflect level and intensity of use for areas and recommend future management actions.

Use public education and interpretation to enhance management areas.

Map 2-6 shows the locations of the Special Recreation Management Areas (SRMAs) described below.

Gold Butte SRMA

Objectives:

Manage the Gold Butte area for semi-primitive recreation opportunities to reduce conflicts with existing uses and values, including wildlife habitat; cultural resources; and other uses. (See Glossary, Appendix D, for definition of semi-primitive recreation).

Within the Gold Butte area, manage one-third of the area for semi-primitive nonmotorized recreation opportunities within those areas currently used for those activities.

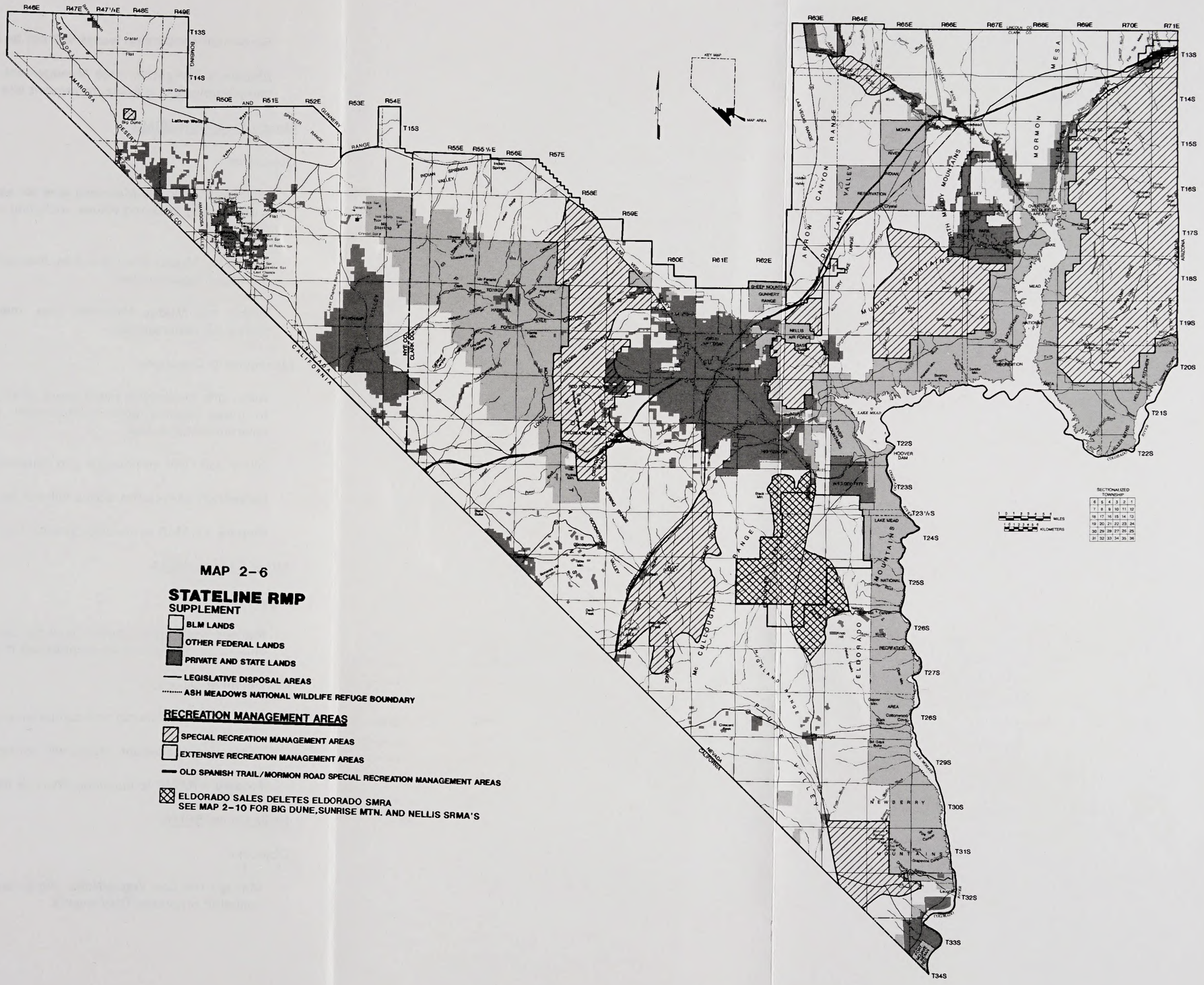
Within the Gold Butte area, manage for semi-primitive motorized recreation opportunities in areas identified as open to vehicle use along designated roads and trails.

Manage the remaining area for moderate intensity recreation opportunities along the primary travel corridor.

Management Direction:

Prohibit all competitive OHV events.

Allow non-OHV competitive and commercial permitted events and activities on a case-by-case basis.



MAP 2-6

STATELINE RMP
SUPPLEMENT

- BLM LANDS
- OTHER FEDERAL LANDS
- PRIVATE AND STATE LANDS
- LEGISLATIVE DISPOSAL AREAS
- ASH MEADOWS NATIONAL WILDLIFE REFUGE BOUNDARY

RECREATION MANAGEMENT AREAS

- SPECIAL RECREATION MANAGEMENT AREAS
- EXTENSIVE RECREATION MANAGEMENT AREAS
- OLD SPANISH TRAIL/MORMON ROAD SPECIAL RECREATION MANAGEMENT AREAS

ELDORADO SALES DELETES ELDORADO SMRA
SEE MAP 2-10 FOR BIG DUNE, SUNRISE MTN. AND NELLIS SRMA'S

Recreation concession leases will not be allowed in the SRMA.

Prepare a Recreation Area Management Plan (RAMP) to consider the need for semi-developed camping/picnicking areas, to prevent site degradation should use levels increase.

Muddy Mountains SRMA

Objectives:

Manage the Muddy Mountain area for semi-primitive recreation opportunities to reduce conflicts with existing uses and values, including wildlife habitat, cultural resources, and other recreational uses.

Within the Muddy Mountain area, manage the majority of the area for semi-primitive nonmotorized recreation opportunities.

Within the Muddy Mountain area, manage the remaining area for semi-primitive motorized recreation opportunities.

Management Direction:

Allow one motorcycle event every other year in the White Basin area. Courses would be limited to those existing prior to December 1, 1993, plus existing roads and washes, following environmental review.

Allow non-OHV commercial and competitive permitted events and activities.

Recreation concession leases will not be allowed in the SRMA.

Prepare a RAMP to consider specific management actions and developments.

Arrow Canyon SRMA

Objective:

Manage the Arrow Canyon area for semi-primitive recreation opportunities. The protection of cultural resources will be emphasized in recreation management decisions.

Management Direction:

Prohibit all commercial and competitive permitted events and activities.

Recreation concession leases will not be allowed in the SRMA.

Prepare a RAMP to consider potential development of day use recreation facilities.

Nellis Dunes SRMA

Objective:

Manage the Las Vegas/Nellis Dunes area for intensive OHV and other recreation opportunities including organized OHV events.

Management Direction:

Permit a maximum of 14 OHV events annually within the area in accordance with the USFWS Programmatic Section 7 consultation and resultant Biological Opinion.

Prepare a RAMP to include potential development of parking, day use, and camping areas as well as to resolve potential conflicts with the management of sensitive plant species.

Prohibit recreational and target shooting throughout the SRMA, to coincide with Clark County's shooting ordinance.

Allow cooperative ventures such as concession management to enhance recreation opportunities.

Sunrise Mountain SRMA

Objectives:

Manage the Sunrise/Frenchman Mountain/Rainbow Gardens area for intensive recreation opportunities.

Management Direction:

Prohibit competitive OHV events.

Allow non-OHV competitive and commercial permitted events and activities.

Allow recreation concession leases.

Concentrate major power transmission rights-of-way within the confines of the corridor to reduce conflicts with recreation and to reduce impacts to scenic resources such as Rainbow Gardens and Lava Butte.

Maintain the scenic and interpretive integrity of the area's geologic formations.

Prepare a RAMP to consider development of a Back Country Byway, a multiple use trail system, camping and picnic areas.

Coordinate with Clark County, Nevada Department of Wildlife, and other interested groups and individuals to provide for designated, managed shooting area. Prohibit recreational and target shooting (to coincide with Clark County's shooting ordinance) in the remainder of the SRMA.

Jean Lake/Roach Lake SRMA

Objective:

Manage the Jean/Roach Dry Lakes area for intensive recreation opportunities, including organized OHV and other recreational events, as well as dispersed recreational use and commercial activities.

Management Direction:

Permit a maximum of 10 OHV events annually in accordance with USFWS Programmatic Section 7 consultation and resultant Biological Opinion.

Prepare a RAMP which allows recreation concession leases.

Keyhole Canyon SRMA

Objectives:

Manage the Keyhole Canyon area for semi-primitive motorized recreation opportunities emphasizing cultural resource protection and interpretation.

Management Direction:

Do not allow competitive events or activities in the Keyhole Canyon area.

Allow appropriate commercial permitted activities on a case-by-case basis.

Do not allow recreation concession leases.

Christmas Tree Pass SRMA

Objective:

Manage the Christmas Tree Pass area for semi-primitive motorized recreational opportunities including camping, hiking, mountain bike riding, interpretation, climbing, wildlife viewing, picnicking, hunting, pleasure driving, photography, horseback riding, and nature study.

Management Direction:

Prohibit all OHV competitive events.

Allow non-OHV competitive and commercial events and activities on a case-by-case basis.

Do not allow recreation concession leases within the ACEC/DWMA; recreation concession leases will be allowed elsewhere within the SRMA subject to managing the SRMA for semi-primitive recreation opportunities.

Prepare a RAMP to consider establishment of a camping or picnic area and interpretive center.

Desert View SRMA

The SRMA would include public lands along the eastern base of the Spring Mountains National Recreation Area, from Kyle Canyon Road to Lee Canyon Road.

Objectives:

Manage the Desert View area for interpretation of the area's scenic and ecological transition zones in both Kyle and Lee Canyons.

Management Direction:

Prohibit all OHV competitive events.

Allow non-OHV competitive and commercial events and activities and recreation concession leases.

Prepare a RAMP to consider the development of a multiple use trail system.

Big Dune SRMA

Objectives:

Manage the Big Dune area for moderate, casual OHV use, camping, and other casual recreation opportunities in areas outside of those established for habitat of the Big Dune scarab beetle and other endemic beetles within the dune area.

Management Direction:

Prohibit all OHV and non-OHV competitive events.

Do not allow commercial activities in special status species habitat.

Do not allow recreation concession leases.

Prepare a RAMP which should include establishment of group camping areas.

Establish an area, initially not to exceed one half of the dunes formations, which would be closed to OHV use, to ensure the continued survival of the native beetle population. Long term recreation management within the dunes would be based on the results of a projected study of the beetles' minimum habitat requirements.

Stateline Extensive Recreation Management Area (ERMA)

Objective:

Manage the Stateline Extensive Recreation Management Area for dispersed and diverse recreation opportunities that meet the objectives of the Recreation Opportunity Spectrum inventory.

Management Direction:

Identify and reserve recreational trail requirements, as needed, prior to land disposals in the ERMA.

Allow OHV competitive events only in the following areas:

Dry Lake Valley Area
Pahrump Valley to Beatty Area
Mercury Area
Laughlin Area
Muddy Mountains Area (one motorcycle race every other year in White Basin area)
Meadow Valley Wash road

Allow non-OHV competitive and commercial events and activities within the ERMA subject to conflict resolution.

Allow recreation concession leases that benefit the Recreation Opportunity Spectrum inventory management classes.

Prepare a RAMP for the ERMA.

Manage for a full spectrum of dispersed recreation opportunities within the ERMA. Inventory public lands within the Las Vegas Valley to identify areas on the perimeter that are appropriate for recreational and target shooting. Coordinate with Clark County, Nevada Department of Wildlife, and interested groups/individuals to provide shooting opportunities on public lands.

Prohibit recreational and target shooting on other public lands within the Las Vegas Valley to coincide with the Clark County shooting ordinance. Legal hunting would be appropriate subject to NDOW regulations.

Inventory, designate, and manage mountain bike and equestrian trails throughout the ERMA to meet increasing public demand for these activities.

Off Highway Vehicle Designations

Objectives:

Designate the following areas as open to motorized uses to provide for maximum opportunities for off-highway vehicle use.

Nellis Dunes SRMA
Non-vegetated portions of dry lake beds
Non-vegetated portions of Big Dune SRMA
(outside of the beetle habitat areas)

Designate approximately 1,310,000 acres in the following areas, as shown on Map 2-10, as limited to designated roads and trails. This designation would provide for a moderate level of off-highway vehicle use with a high level of protection for wildlife habitat, cultural resources, hydrological and soil resources, recreation opportunities, and other legitimate users of the public land.

Amargosa Mesquite ACEC
Arden Historic Sites ACEC
Ash Meadows ACEC
Arrow Canyon/Coyote Springs ACEC/DWMA
Arrow Canyon Paleo Site ACEC
Bird Spring Archaeological Site ACEC
Crescent Mining Townsite ACEC
Gold Butte Historic Mining Townsite ACEC
Gold Butte ACEC/DWMA
Keyhole Canyon Rock Art Site ACEC
Mormon Mesa ACEC/DWMA
Old Spanish Trail/Mormon Road Trail ACEC
Piute/Eldorado Valley ACEC/DWMA
Rainbow Gardens ACEC
River Mountains ACEC
Sloan Rock Art Site ACEC
Stump Springs ACEC
Virgin Mountain ACEC

Designate the remainder of the SRA as limited to existing roads and trails to provide for a high level of off-highway vehicle use while affording a moderate level of protection for wildlife habitat, cultural resources, hydrological and soil resources, recreation opportunities, and to protect other legitimate users of the public land.

Designate the following areas as closed to motorized uses to provide a maximum level of protection for wildlife habitat, cultural resources, hydrological and soil resources, non-motorized recreation opportunities, natural/aesthetic values, and other legitimate uses of the public land.

Hidden Valley District ACEC
Virgin River ACEC (that portion shown on Map 2-10)
One-half of Big Dune SRMA

Cave Management

Objectives:

Manage significant cave resources for their recreational, biological, geological, hydrological, cultural, and educational values.

Manage each cave for its primary unique resource opportunity such as for paleontological or recreational values.

Management Direction:

Prepare a RAMP for all significant cave resources that determines the primary value being managed for in each cave.

Manage all cave resources as wild systems, free from commercial or show cave type developments.

Establish a registration system for cave entry, where needed. This system could include signs, registers, and gates.

Designate all significant cave resources and newly-discovered cave resources as right-of-way avoidance areas.

If necessary, implement seasonal closures to protect hibernating or migrating bats from unnecessary disturbances.

WILD AND SCENIC RIVERS MANAGEMENT

Objective:

Determine the eligibility of the Virgin River for Wild and Scenic River designation based on the river being classified as a "Recreational River".

Management Direction:

Prepare a legislative EIS/Study of the Virgin River with the Cedar City District, Utah, the Arizona Strip District, and the Las Vegas District, Nevada to determine the suitability of the river for designation into the National Wild and Scenic Rivers System.

Provide interim management protection for the river by requiring any proposed action to consider the potential affect on the river's classification as a "Recreational River."

RIGHTS-OF-WAY MANAGEMENT

Objective:

Meet public demand and reduce impacts to sensitive resources by providing an orderly system for transportation, communications, major utility transmission lines and related facilities.

Management Direction:

Utility/Transportation Corridors

Retain the following designated corridors as valid existing management:

Numerous corridors, established within the Apex sale area by P.L. 101-67, consisting of existing powerline rights-of-way ranging from 300 feet to 1,800 feet in width.

Designate the following corridors:

A corridor for those lands presently under right-of-way reservation in the Moapa Indian Reservation Legislation, extending 1,500 feet westerly of the right-of-way for the Reid Gardner-Pecos transmission line through the area, and 1,500 feet easterly of the right-of-way for the McCullough transmission line.

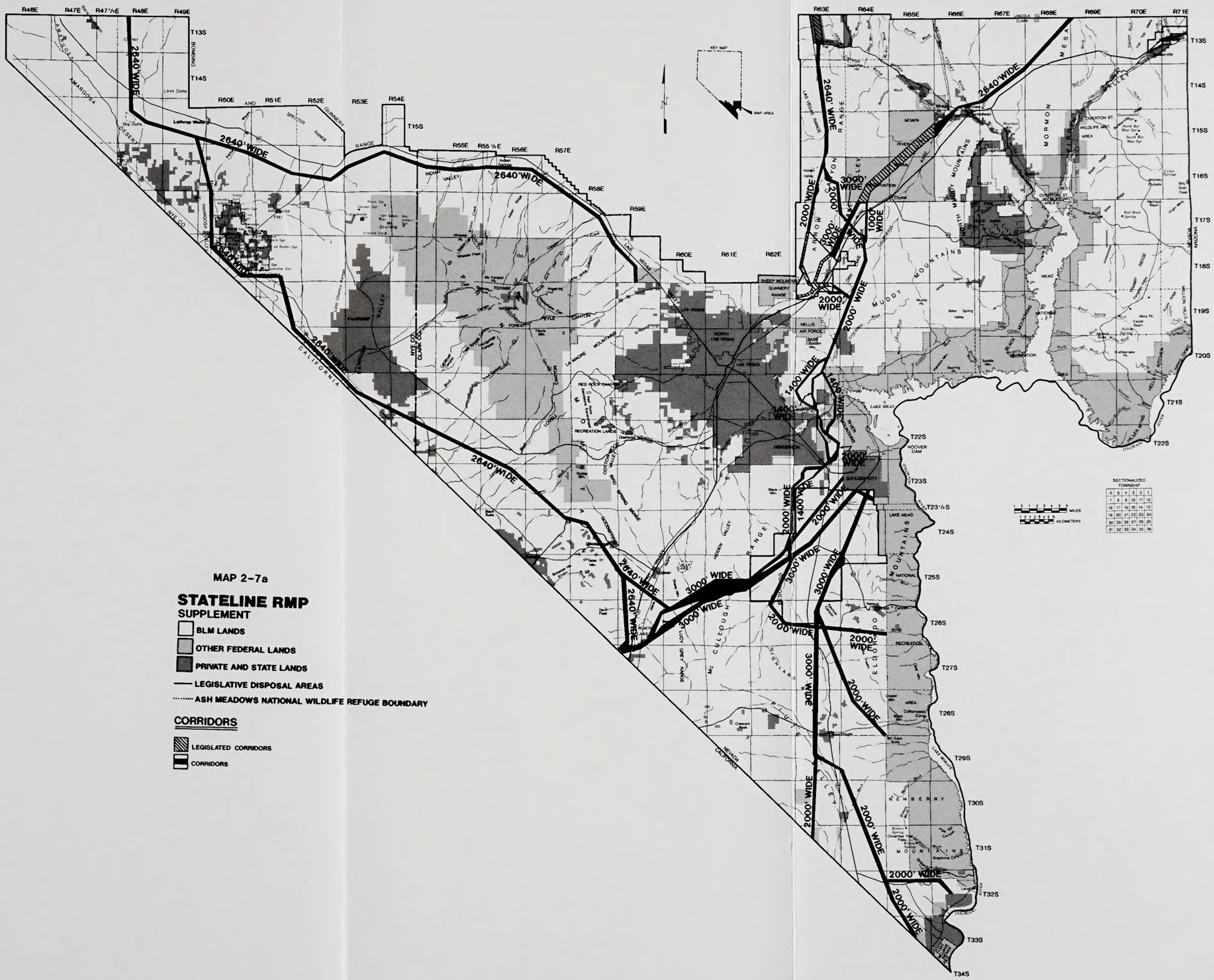
Henderson/Rainbow Gardens/Sunrise area:

a) A corridor 1,400 feet wide from the north side of the Sunrise Instant Study Area, westerly of the Rainbow Gardens, southerly to the IPP/McCullough crossover near Las Vegas Wash ("A" corridor on Maps 2-7 a-c).

b) A corridor 1,400 feet wide from the north side of the Sunrise WSA south through the Rainbow Gardens to the Lake Mead crossover. This corridor is described as west of the east boundary of the IPP-McCullough powerlines ("B" corridor on Maps 2-7 a-c).

c) A corridor 1,400 feet wide parallel and easterly from the western edge of the Intermountain Power Project (IPP) right-of-way from the IPP- McCullough cross-over north of Lake Mead Drive south to the Mead-McCullough substations. Maintain the corridor at this width with all construction east of the IPP-McCullough lines ("A-B" corridor on Maps 2-7 a-c).

d) A corridor 1,400 feet wide on BLM and Lake Mead National Recreation Area lands to the east of the Lakes project, subject to National Park Service approval ("C" corridor on Maps 2-7 a-c).



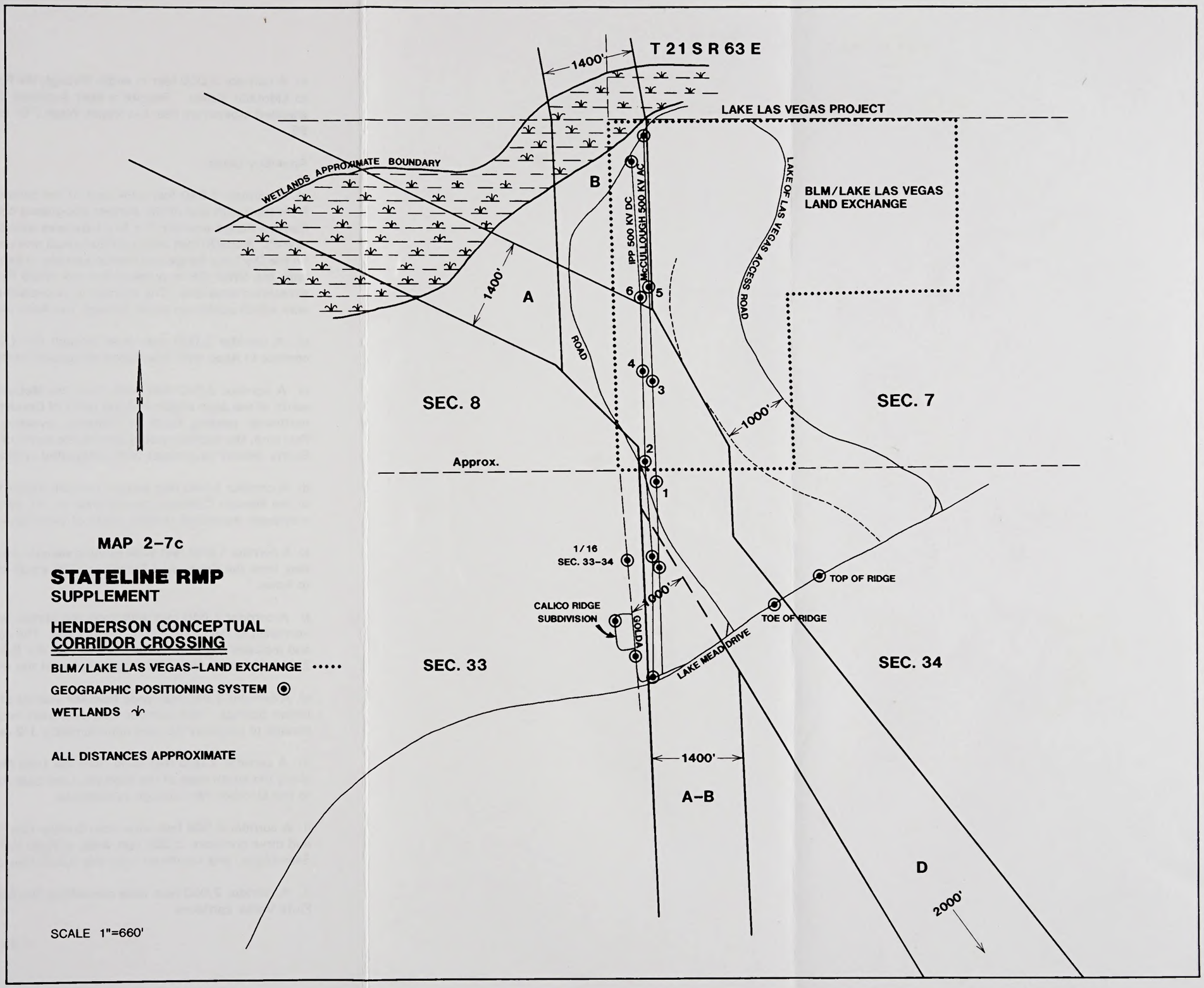
MAP 2-7a

STATELINE RMP
SUPPLEMENT

- BLM LANDS
- OTHER FEDERAL LANDS
- PRIVATE AND STATE LANDS
- LEGISLATIVE DISPOSAL AREAS
- ASH MEADOWS NATIONAL WILDLIFE REFUGE BOUNDARY

CORRIDORS

- LEGISLATED CORRIDORS
- CORRIDORS


T 21 S R 63 E
1400'
LAKE LAS VEGAS PROJECT
WETLANDS APPROXIMATE BOUNDARY
B
IPP 500 KV DC
McCULLOUGH 500 KV AC
LAKE OF LAS VEGAS ACCESS ROAD
BLM/LAKE LAS VEGAS
LAND EXCHANGE
1400'
A
6
5
ROAD
4
3
SEC. 8
SEC. 7
1000'
Approx.
2
1
1/16
SEC. 33-34
TOP OF RIDGE
1000'
CALICO RIDGE
SUBDIVISION
GOLDA
TOE OF RIDGE
LAKE MEAD DRIVE
SEC. 33
SEC. 34
1400'
A-B
D
2000'
MAP 2-7c
STATELINE RMP
SUPPLEMENT
HENDERSON CONCEPTUAL
CORRIDOR CROSSING
BLM/LAKE LAS VEGAS-LAND EXCHANGE
GEOGRAPHIC POSITIONING SYSTEM
WETLANDS
ALL DISTANCES APPROXIMATE
SCALE 1"=660'

e) A corridor 2,000 feet in width through the River Mountains and south across Highway 95 to Eldorado Valley. Require a Best Available Technology analysis for undergrounding and elevated crossovers near Las Vegas Wash ("D" corridor on Maps 2-7 a-c) and at U.S. Highway 95.

Apex/Dry Lakes:

a) A corridor 2,640 feet wide east of the centerline of Highway 93 down Coyote Springs Valley from the south end of the Aerojet designated corridor. The corridor would cross over the Arrow Canyon Range and into the Dry Lake area substation identified in the Southwest Intertie Project (SWIP). A 2,200 foot wide corridor would proceed southeasterly to an alternative SWIP substation on the Dry Lake Range and thence easterly to join the north/south corridor. This path is consistent with the SWIP EIS in process and the White Pine Power Project EIS decision as far as the first substation locations. The corridor is inconsistent with the Intermountain Power Project right-of-way which continues south through the Apex area in legislatively created corridors.

b) A corridor 3,000 feet wide through Dry Lake connecting the 1,800 foot wide designated corridor in Apex with the Moapa designated corridor.

c) A corridor 2,640 feet wide from the McCullough Pass area heading northwest and passing south of the Jean airport and the town of Goodsprings, through Crystal Pass, and thence straight northwest passing south of Pahrump, avoiding airports and private lands in the area. From Pahrump, the corridor would pass to the south of the Ash Meadows area, and thence north to the Beatty vicinity to connect with designated corridors in the Tonopah Resource Area.

d) A corridor 2,640 feet wide in Ivanpah Valley following the general route of Kern River Pipeline to the Nevada-California border west of the Whiskey Pete Casino. The corridor would join the previously described corridor south of Goodsprings.

e) A corridor 1,000 feet wide running easterly along the east edge of the IPP-McCullough rights-of-way from the designated Moapa corridor south to the junction with the 2,000 foot wide corridor to Apex.

f) A corridor 2,640 feet wide from the Moapa Reservation designated corridor at Moapa running northeast to the Clark-Lincoln County line. The corridor is 1/4 mile each side of the IPP 500 kv line and includes the Kern River Pipeline. At the Reid Garner Power Plant (in Moapa) the corridor is 2,640 feet wide from the western edge of the IPP right-of-way.

g) A corridor 2,640 feet wide from the vicinity of Lathrop Wells to the north side of Las Vegas via Indian Springs. The corridor follows a path located south of the north edge of the powerlines parallel to Highway 95, and approximately 1/2 mile south of Highway 95.

h) A corridor 2,000 feet wide from the Lake Mead Recreation Area boundary south of Nelson, along the south edge of the Eldorado Land Sale Area to join a 3,000 foot wide corridor connecting to the Eldorado-McCullough substations.

i) A corridor 3,000 feet wide from Boulder City (Mesa substation) to 3 miles south of Searchlight and three corridors, 2,000 feet wide, in Piute Valley, extending south at Searchlight, southeast of Searchlight, and southeast from the 3,000 foot corridor, near Keyhole Canyon.

j) A corridor 2,000 feet wide connecting the Mohave Powerplant at Laughlin to the north/south Piute Valley corridors.

Other Corridor Considerations:

1. Require transmission line proponents to design a line crossing in T 21 S, R 63 E, Section 27 that mitigates the impacts on the adjacent subdivisions of Lake Las Vegas and Calico Ridge. Require that such a crossing make technical determinations as to how many lines, where and how they will cross within a 1,000 foot zone midway between the subdivisions. If there is not enough room or technical capability to cross all proposed lines at this point, BLM in concert with the affected utility companies will determine which projects have priority based on project viability, previous right-of-way grants and federal decisions, and overall public interest. Evaluate the feasibility of using underground high voltage cables.

2. Request that Los Angeles Department of Water and Power (LADWP), which has been assigned the IPP right-of-way, conform with the right-of-way to the Dry Lake corridor described above or require that LADWP and Idaho Power to agree to cross over farther north in order to place IPP on the west side of the corridor at the Arrow Canyon crossover.

3. Restrict corridor widths in Piute Valley to 2,000 feet except the central north/south corridor immediately south of Searchlight. The north/south corridor is further defined as 2000 feet west of the eastern edge of existing powerline rights-of-way. This path stays west of the community of Searchlight.

4. Resolve the conflict between the Pabco Road exclusive use right-of-way and corridor designation.

Eldorado Land Sale Area:

a) Reserve in the patent and with the concurrence of the sale proponent, 2,000 and 3,000 foot wide northeast/southwest corridors, and a 1,000 foot wide corridor north/south along the western edge of the sale area, and a 2,000 foot wide corridor through the Eldorado Mountains. These corridors provide adequate room on either side of the current lines for two or more lines, which is more than is projected.

Corridor Criteria:

No newly-designated corridor will be over 3,000 feet in width.

When feasible, and where compatible, major pipeline rights-of-way will be placed within powerline corridors.

Corridors will meet safety, reliability, environmental quality, economic efficiency, and good engineering and technical practices to avoid incorrect corridor designation and future administrative problems.

Avoid private property to the extent possible.

Designate corridors of adequate width and capacity to provide for known potential users plus space for flexibility of design.

Specifically define corridor boundaries and locations, relative to physical terrain.

Right-of-Way Avoidance Areas

All ACECs/DWMAs and within 1/4 mile of significant caves, *exclusive of any designated corridors*, are designated as right-of-way avoidance areas. The BLM will discourage the location of rights-of-way within these areas. If technical, economic, or environmental concerns mandate right-of-way location in an avoidance area, special terms and conditions, as identified below, will be required.

Special terms and conditions:

Consideration should be given to placing facilities underground in specific circumstances.

Similar types of utilities shall be co-located whenever possible and feasible.

All other special terms and conditions will be developed on a case-by-case basis through the environmental review process.

Right-of-Way Exclusion Areas

No material site rights-of-way will be authorized within ACECs/DWMAs.

All other right-of-way applications received from private individuals, corporations, and state, and local governments will be addressed on a case-by-case basis.

Areal Rights-of-Way

Authorization of future communication site rights-of-way will be limited to existing, established communication sites and within existing rights-of-way and facilities. until a site management plan has been approved for that site. Exceptions will be made if the use of an established site is not technically or economically feasible and justification is presented. Access will be by existing roads or helicopter only.

Authorization of new material site rights-of-way will be contingent upon evaluation of the 178 existing sites; justification made for continued use of existing sites; and need presented for additional sites. Coordination with Nevada Department of Transportation (NDOT) will be ongoing and BLM will encourage relinquishment of sites not being used or identified by NDOT as no longer needed. Terms and conditions, shown in Appendix C of the *Draft RMP/EIS*, for future sites will be incorporated in any new material site rights-of-ways authorized (terms and conditions are in conformance with the regulations contained in 43 CFR 23).

WILDERNESS MANAGEMENT

Objectives:

Manage those wilderness study areas (WSAs) not designated by Congress to allow opportunities for mineral exploration and development.

Manage those wilderness study area lands not designated by Congress to generally maintain the existing qualities of those areas through multiple use management of the areas.

Management Direction:

Require an approved mining Plan of Operations for the following WSAs, which are within ACECS:

Arrow Canyon (partial)
Ireteba Peaks (partial)
Garret Buttes
Jumbo Springs
Million Hills
Lime Canyon
Fish and Wildlife #1,2,3
Virgin Peak

Withdraw 3,360 acres within the Hidden Valley Archeological District ACEC in the Muddy Mountains WSA from entry under the mining, non-energy mineral leasing, and mineral materials disposal laws. Open the area to fluid mineral leasing, subject to no surface occupancy.

MINERALS MANAGEMENT

Objectives:

Provide for orderly exploration and development of minerals on Federally owned mineral estate whether or not the surface estate is in Federal ownership.

Management Areas:

See Map 2-8 for the locations of the mineral management areas described below.

Management Actions:

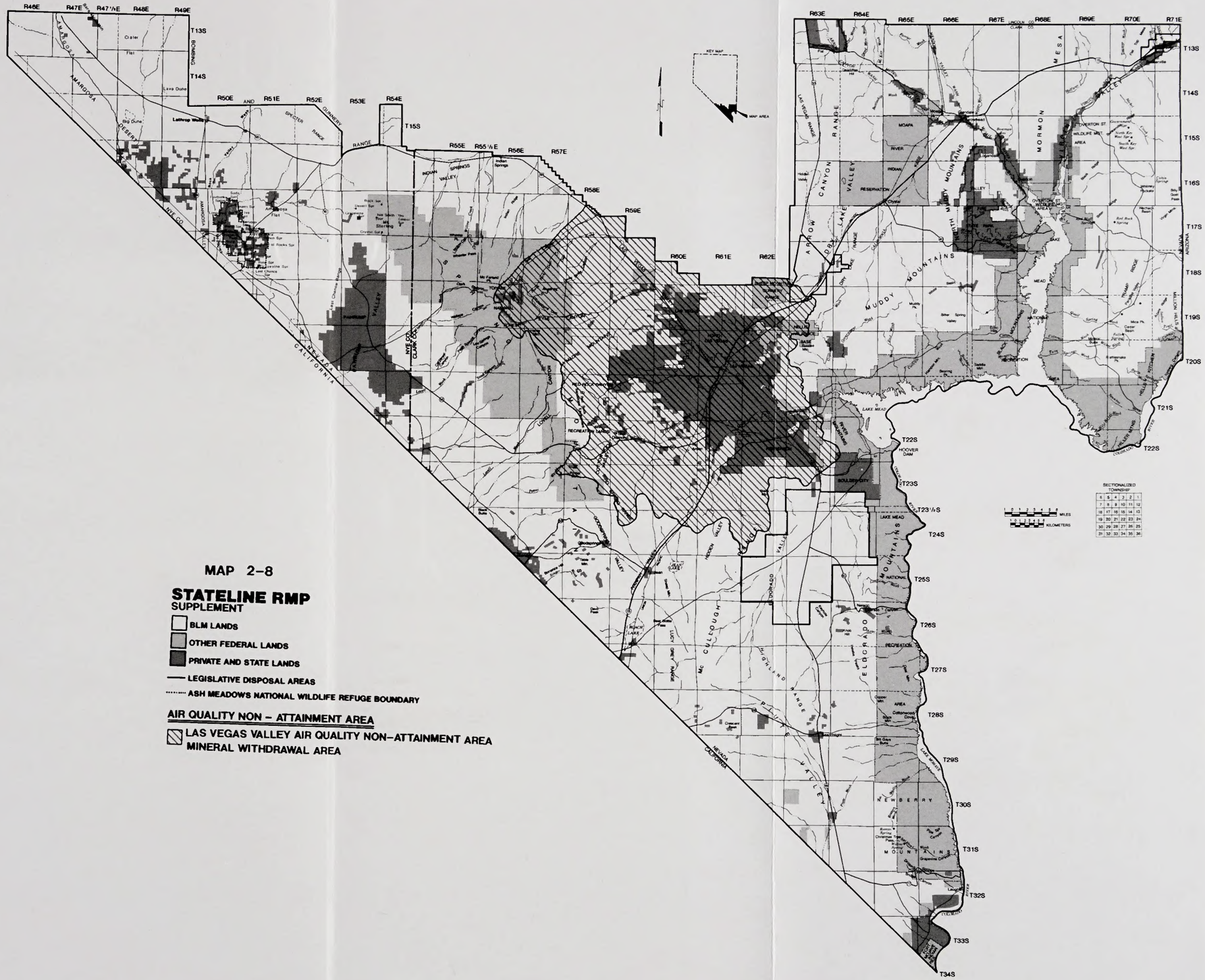
Do not renew four existing sand and gravel leases. Convert the leases to mineral material contracts.

Do not approve three existing sand and gravel lease applications.

Fluid Leasable Minerals

Open all of the Stateline Resource Area to fluid mineral leasing, subject to standard terms and conditions, except for the following areas, which are subject to no surface occupancy:

Amargosa Mesquite ACEC
Arden Historic Sites ACEC
Arrow Canyon Paleontological Site ACEC
Big Dune ACEC
Bird Spring Archaeological Site ACEC
Crescent Mining Townsite ACEC
Desert Tortoise Conservation Center
Devil's Throat ACEC
Gold Butte Mining Townsite ACEC



MAP 2-8

STATELINE RMP
SUPPLEMENT

- BLM LANDS
- OTHER FEDERAL LANDS
- PRIVATE AND STATE LANDS
- LEGISLATIVE DISPOSAL AREAS
- ASH MEADOWS NATIONAL WILDLIFE REFUGE BOUNDARY

AIR QUALITY NON – ATTAINMENT AREA

- LAS VEGAS VALLEY AIR QUALITY NON–ATTAINMENT AREA
- MINERAL WITHDRAWAL AREA

Hidden Valley (Muddy Mountains) Archaeological District ACEC
Keyhole Canyon Rock Art Site ACEC
Meadow Valley Wash riparian zone and floodplain

Open all of the Stateline Resource Area to fluid mineral leasing, subject to standard terms and conditions, except for the following areas, which are subject to no surface occupancy:

Muddy River riparian zone and floodplain
Red Rock Spring Archaeological Site ACEC
Sloan Rock Art Site ACEC
Stump Spring Prehistoric/Historic Site ACEC
Virgin River Anasazi Prehistoric District ACEC
Virgin River riparian zone and floodplain
Whitney Pocket Archaeological Complex ACEC
Within 1/4 mile of significant caves and alcoves
Within 1/4 mile of springs and associated riparian zones
Within 1/4 mile of the centerline of existing sections of the Old Spanish Trail/ Mormon Road

Close the following areas to fluid mineral leasing:

Valid Existing Closures
Ash Meadows ACEC
Bird Mountain Traditional Lifeways Area
Gold Butte Traditional Lifeways Area
Rainbow Gardens ACEC
Spirit Mountain Traditional Lifeways Area

Locatable Minerals

Close the following areas to the operation of the mining laws, subject to valid existing rights:

Valid Existing Closures
Amargosa Mesquite ACEC
Arden Historic Sites ACEC
Arrow Canyon Paleontological Site ACEC
Ash Meadows ACEC
Big Dune ACEC
Big Dune Recreation Lands
Bird Mountain Traditional Lifeways Area
Bird Spring Archaeological Site ACEC
Crescent Mining Townsite ACEC
Desert Tortoise Conservation Center
Devil's Throat ACEC
Gold Butte Mining Townsite ACEC
Gold Butte Traditional Lifeways Area
Hidden Valley (Muddy Mountains) Archaeological District ACEC
Keyhole Canyon Rock Art Site ACEC
Las Vegas Valley Air Quality Non-attainment Area
Laughlin Land Disposal Area
Meadow Valley Wash riparian zone
Muddy River riparian zone
Nellis Dunes Recreation Lands

Rainbow Gardens ACEC
Red Rock Spring Archaeological Site ACEC
River Mountains ACEC
Sloan Rock Art Site ACEC

Close the following areas to the operation of the mining laws, subject to valid existing rights:

Spirit Mountain Traditional Lifeways Area
Stump Spring Prehistoric/Historic Site ACEC
Virgin River Anasazi Prehistoric District ACEC
Virgin River riparian zone
Virgin Mountains ACEC
Whitney Pocket Archaeological Complex ACEC
Within 1/4 mile of significant caves and alcoves
Within 1/4 mile of springs and associated riparian zones
Within 1/4 mile of the centerline of existing sections of the Old Spanish Trail/ Mormon Road

The remainder of the planning unit will be open to locatable mineral exploration and development.

Mineral Materials

All of the Stateline Resource Area is open (1) to authorization/renewal of material site rights-of-way, and (2) mineral materials disposal, except the following areas.

Close the Las Vegas Valley Air Quality Non-attainment Area to authorization/renewal of material site rights-of-way; and (2) to mineral materials disposal outside of a community pit. Open the Las Vegas Valley Air Quality Non-attainment Area to mineral materials disposal within a community pit (Map 2-8):

Close the following areas to authorization/renewal of material site rights-of-way and to mineral materials disposal:

Valid Existing Closures
Amargosa Mesquite ACEC
Arden Historic Sites ACEC
Arrow Canyon Paleontological Site ACEC
Ash Meadows ACEC
Big Dune ACEC
Big Dune Recreation Lands
Bird Mountain Traditional Lifeways Area
Bird Spring Archaeological Site ACEC
Arrow Canyon/Coyote Springs ACEC/DWMA
Crescent Mining Townsite ACEC
Desert Tortoise Conservation Center
Devil's Throat ACEC
Gold Butte ACEC/DWMA
Gold Butte Mining Townsite ACEC
Gold Butte Traditional Lifeways Area
Hidden Valley (Muddy Mountains) Archaeological District ACEC
Keyhole Canyon Rock Art Site ACEC
Laughlin Land Disposal Area
Meadow Valley Wash riparian zone
Mormon Mesa ACEC/DWMA

Muddy River riparian zone
Nellis Dunes Recreation Lands
Piute/Eldorado Valley ACEC/DWMA
Rainbow Gardens ACEC
Red Rock Spring Archaeological Site ACEC
River Mountains ACEC
Sloan Rock Art Site ACEC
Spirit Mountain Traditional Lifeways Area
Stump Spring Prehistoric/Historic Site ACEC
Virgin River Anasazi Prehistoric District ACEC
Virgin River riparian zone
Virgin Mountains ACEC
Whitney Pockets Archaeological Complex ACEC
Within 1/4 mile of significant caves and alcoves
Within 1/4 mile of springs and associated riparian zones
Within 1/4 mile of the centerline of existing sections of the Old Spanish Trail/ Mormon Road

Non-Energy Leasable Minerals

All of SRA is open to non-energy leasing, except previous withdrawals and the following areas:

Valid Existing Closures
Amargosa Mesquite ACEC
Arden Historic Sites ACEC
Arrow Canyon Paleontological Site ACEC
Ash Meadows ACEC
Big Dune ACEC
Big Dune Recreation Lands
Bird Mountain Traditional Lifeways Area
Bird Spring Archaeological Site ACEC
Arrow Canyon/Coyote Springs ACEC/DWMA
Crescent Mining Townsite ACEC
Desert Tortoise Conservation Center
Devil's Throat ACEC
Gold Butte ACEC/DWMA
Gold Butte Mining Townsite ACEC
Gold Butte Traditional Lifeways Area
Hidden Valley (Muddy Mountains) Archaeological District ACEC
Keyhole Canyon Rock Art Site ACEC
Las Vegas Valley Air Quality Non-attainment Area
Laughlin Land Disposal Area
Meadow Valley Wash riparian zone
Mormon Mesa ACEC/DWMA
Muddy River riparian zone
Nellis Dunes Recreation Lands
Piute/Eldorado Valley ACEC/DWMA
Rainbow Gardens ACEC
Red Rock Spring Archaeological Site ACEC
River Mountains ACEC
Sloan Rock Art Site ACEC
Spirit Mountain Traditional Lifeways Area
Stump Spring Prehistoric/Historic Site ACEC

Virgin River Anasazi Prehistoric District ACEC
Virgin River riparian zone
Virgin Mountains ACEC
Whitney Pockets Archaeological Complex ACEC
Within 1/4 mile of significant caves and alcoves
Within 1/4 mile of springs and associated riparian zones
Within 1/4 mile of the centerline of existing sections of the Old Spanish Trail/ Mormon Road

ACQUISITIONS MANAGEMENT

Objectives:

To acquire private lands to enhance the recovery of special status species, protect valuable resources and facilitate the management of adjacent BLM lands.

To secure on-the-ground access to otherwise inaccessible public lands.

Management Direction:

Access Needs

Obtain an easement on or across the Pabco Tram Road.

Land Acquisition Needs

Attempt to acquire the following, where the lands are available and the current owner is willing:

All undeveloped private lands that meet BLM criteria within designated ACECs and DWMAs.

If the opportunity arises, the BLM will attempt to acquire all undeveloped lands located within the planning area conveyed into private ownership to Aerojet Corporation through P.L. 100-275. The lands involved are located in Coyote Spring Valley and will be retained in Federal ownership as part of Coyote Springs/Arrow Canyon ACEC/DWMA.

Private lands along the Virgin River, south of Riverside.

FIRE MANAGEMENT

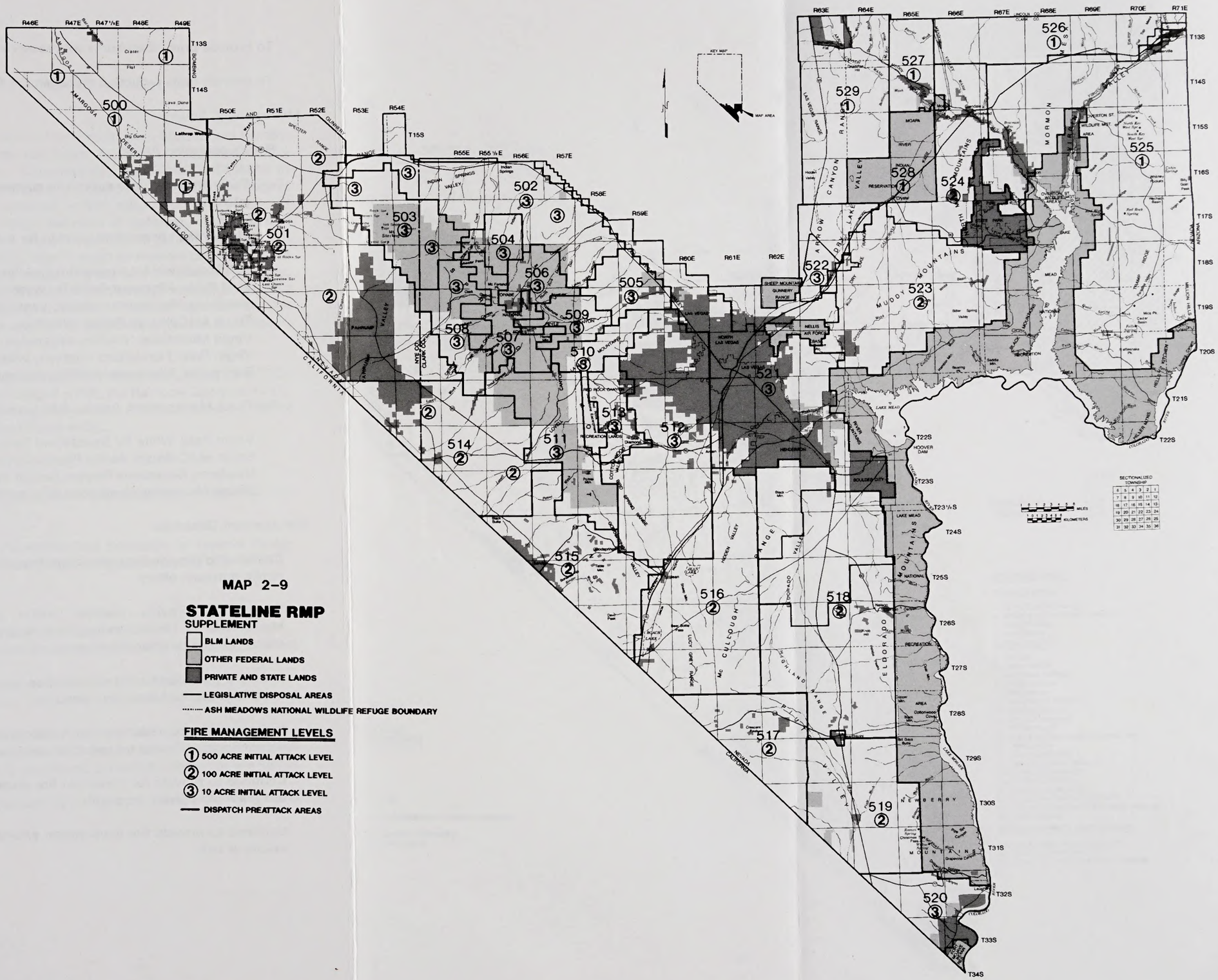
See Map 2-9 for locations of the initial attack areas.

Objectives:

To provide a level of fire suppression on 1,122,322 acres to suppress all wildfires at 500 acres or less 90 percent of the time.

To provide a level of fire suppression on 1,921,794 acres to suppress all wildfires at 100 acres or less 90 percent of the time.

To provide a level of fire suppression on 627,011 acres to maintain maximum fire size at 10 acres or less 90 percent of the time.



MAP 2–9

STATELINE RMP
SUPPLEMENT

- BLM LANDS
- OTHER FEDERAL LANDS
- PRIVATE AND STATE LANDS
- —— LEGISLATIVE DISPOSAL AREAS
- ····· ASH MEADOWS NATIONAL WILDLIFE REFUGE BOUNDARY

FIRE MANAGEMENT LEVELS

- (1) 500 ACRE INITIAL ATTACK LEVEL
- (2) 100 ACRE INITIAL ATTACK LEVEL
- (3) 10 ACRE INITIAL ATTACK LEVEL
- —— DISPATCH PREATTACK AREAS

To provide prescribed burns for resource enhancement purposes on 149,231 acres.

To provide fuels reduction management for resource protection on 232,109 acres.

Management Areas:

Fire Suppression Areas:

The planning area is subject to suppression for wildland fires, at varying levels of initial attack intensity.

Fire Use Areas - prescribed burning for resource enhancement:

Ash Meadows/Amargosa Flat (wildlife, vegetation)
Gold Butte Allotment (wildlife, watershed, wild horses & burros)
Newberry Mountains (wildlife, vegetation)
South McCullough Range (wildlife)
Virgin Mountains (wildlife, vegetation)
Virgin River Floodplains (riparian, wildlife, water quality, recreation)
Bunkerville Allotment (wildlife, watershed)

Fire Fuels Management Areas - fuel hazard reduction for resource/property protection:

Virgin Peak White Fir Stands and Pinyon-Juniper Woodlands (ladder fuel reduction)
South McCullough Range Pinyon-Juniper Woodlands (shaded fuel hazard reduction)
Newberry Mountains Pinyon-Juniper Woodlands (shaded fuel hazard reduction)
Spring Mountains Ponderosa Pine and Pinyon-Juniper Woodlands (ladder fuel reduction)

Management Direction:

Continue to provide for a maximum fire prevention program through an aggressive education and public outreach effort.

Continue to provide, maintain and/or upgrade fire management Cooperative Agreements, Memoranda of Understanding, and reciprocal agreements to provide maximum protection to resources and or adjacent property values.

Initiate a prescribed burn coordination meeting annually with resource specialists to determine specific prescribed burn priorities.

Initiate a hazard reduction burn coordination meeting annually with resource specialists to determine specific hazard reduction priorities.

Continue to provide for maximum fire protection through a comprehensive fire detection system using a multi-agency approach.

Continue to provide fire suppression efforts commensurate with resource and adjacent property values at risk.

SPECIAL MANAGEMENT AREAS

Objective:

1. Establish desert wildlife management areas (DWMAs) within the Northeastern Mojave and Eastern Mojave recovery units identified in the *Recovery Plan for the Desert Tortoise*. Designate DWMAs as areas of critical environmental concern (ACECs). Cumulatively, these ACECs/DWMAs in conjunction with tortoise habitat on other Federal and State land should contain sufficient habitat to support a population of 50,000 adult, desert tortoises within each recovery unit. All ACECs/DWMAs must be of sufficient size to support target densities of tortoises. Actual size of ACECs/DWMAs may be larger than discussed above, if areas of unsuitable habitat are included. In areas where it is not possible to make ACECs/DWMAs large enough to support target densities and population levels, a series of smaller ACECs/DWMAs supporting as many tortoises as possible, may be established. Whenever possible, these ACECs/DWMAs should be large enough to support at least 20,000 adult tortoises. Maintaining functional corridors of habitat between smaller ACECs/DWMAs should be considered to increase the chance of long-term persistence of desert tortoise populations within the recovery unit.

2. Protect areas with significant cultural, natural or geological values by designating them as ACECs. Sunrise Mountain Outstanding Natural Area would be managed within the Rainbow Gardens ACEC; Virgin Mountains Outstanding Natural Area within the Virgin Mountains ACEC, and Devil's Throat Natural Hazard Area would be managed within the Gold Butte ACEC.

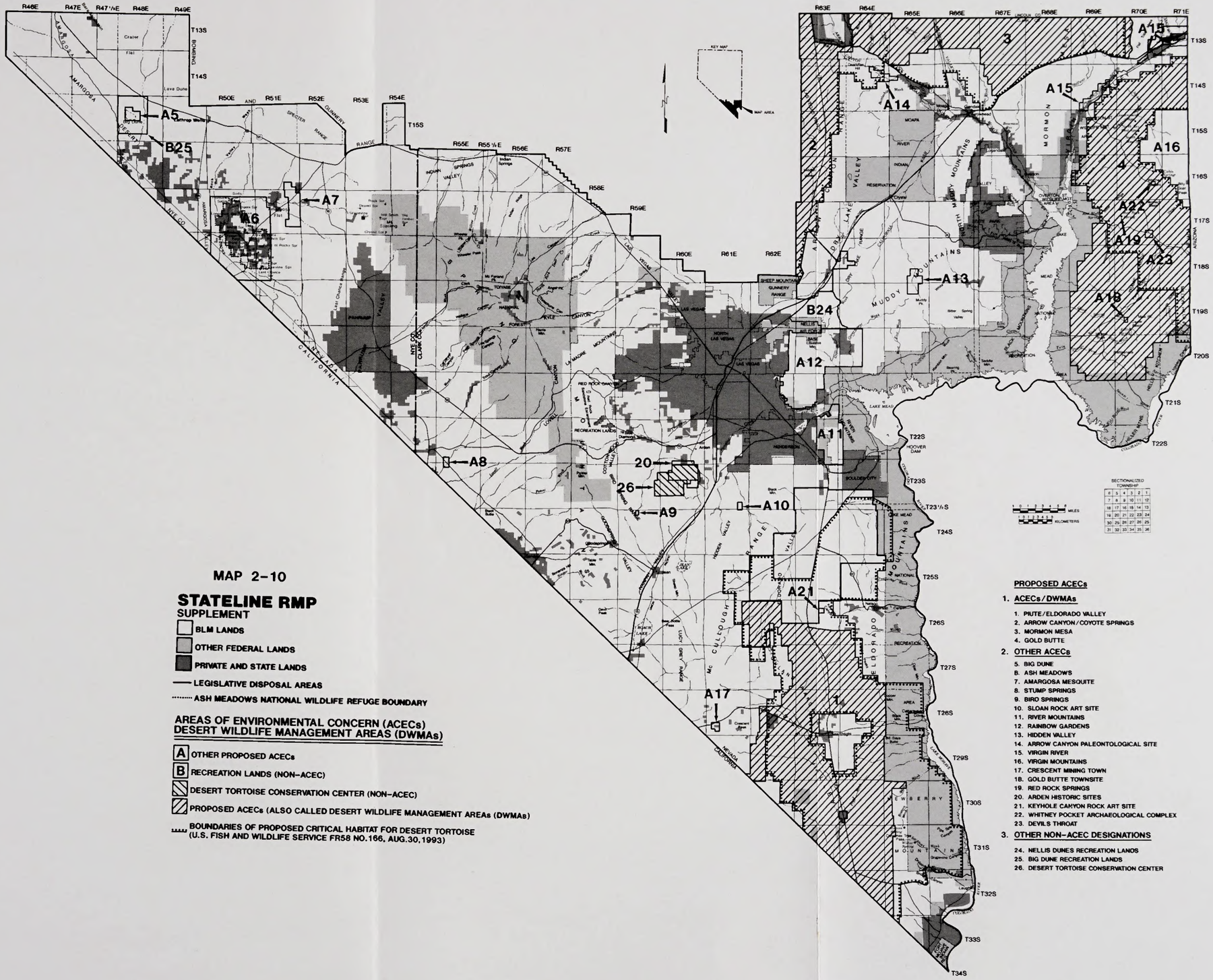
Management Direction:

Designate the areas shown in Table 2-9 and on Map 2-10 as Areas of Critical Environmental Concern (ACECs) for a total of 23 areas and 969,600 acres.

Tortoise ACECs/DWMAs should be designed to meet the established principals of reserve design discussed below (from *Recovery Plan for the Desert Tortoise (Mojave Population)* (USFWS, 1993).

Reserve Design

1. Reserves should be well distributed across a species' native range.
2. Large blocks of habitat containing large populations of the target species are superior to small blocks of habitat containing small populations.
3. Blocks of habitat which are closer together are better than blocks which are far apart.
4. Habitat that occurs in less fragmented, contiguous blocks is preferable to habitat that is fragmented.
5. Habitat patches that minimize edge to area ratios are superior to those that do not.
6. Interconnected blocks of habitat are better than isolated blocks, and corridors or linkages function better when the habitat within them is represented by protected, preferred habitat for the target species.
7. Blocks of habitat that are roadless or otherwise inaccessible to humans are better than roaded and accessible habitat blocks.



MAP 2-10

STATELINE RMP
SUPPLEMENT

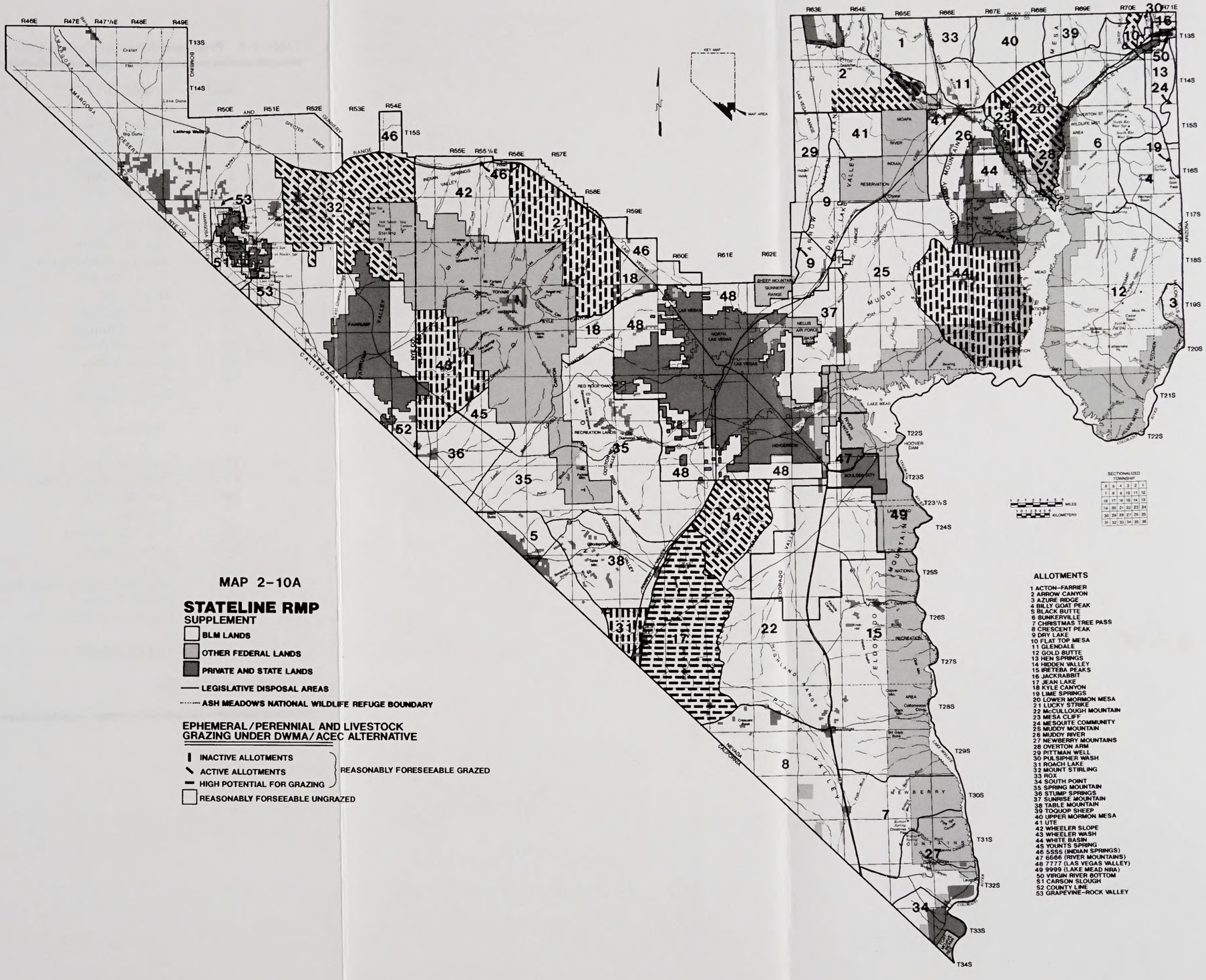
- BLM LANDS
- OTHER FEDERAL LANDS
- PRIVATE AND STATE LANDS
- —— LEGISLATIVE DISPOSAL AREAS
- ..... ASH MEADOWS NATIONAL WILDLIFE REFUGE BOUNDARY

AREAS OF ENVIRONMENTAL CONCERN (ACECs)
DESERT WILDLIFE MANAGEMENT AREAS (DWMAs)

- A OTHER PROPOSED ACECs
- B RECREATION LANDS (NON-ACEC)
- DESERT TORTOISE CONSERVATION CENTER (NON-ACEC)
- PROPOSED ACECs (ALSO CALLED DESERT WILDLIFE MANAGEMENT AREAs (DWMAs)
- BOUNDARIES OF PROPOSED CRITICAL HABITAT FOR DESERT TORTOISE (U.S. FISH AND WILDLIFE SERVICE FR58 NO.166, AUG.30,1993)

PROPOSED ACECs

1. ACECs/DWMAs
   1. PIUTE/ELDORADO VALLEY
   2. ARROW CANYON/COYOTE SPRINGS
   3. MORMON MESA
   4. GOLD BUTTE
2. OTHER ACECs
   5. BIG DUNE
   6. ASH MEADOWS
   7. AMARGOSA MESQUITE
   8. STUMP SPRINGS
   9. BIRD SPRINGS
   10. SLOAN ROCK ART SITE
   11. RIVER MOUNTAINS
   12. RAINBOW GARDENS
   13. HIDDEN VALLEY
   14. ARROW CANYON PALEONTOLOGICAL SITE
   15. VIRGIN RIVER
   16. VIRGIN MOUNTAINS
   17. CRESCENT MINING TOWN
   18. GOLD BUTTE TOWNSITE
   19. RED ROCK SPRINGS
   20. ARDEN HISTORIC SITES
   21. KEYHOLE CANYON ROCK ART SITE
   22. WHITNEY POCKET ARCHAEOLOGICAL COMPLEX
   23. DEVILS THROAT
3. OTHER NON-ACEC DESIGNATIONS
   24. NELLIS DUNES RECREATION LANDS
   25. BIG DUNE RECREATION LANDS
   26. DESERT TORTOISE CONSERVATION CENTER



MAP 2-10A

STATELINE RMP SUPPLEMENT

- BLM LANDS
- OTHER FEDERAL LANDS
- PRIVATE AND STATE LANDS
- LEGISLATIVE DISPOSAL AREAS
- ASH MEADOWS NATIONAL WILDLIFE REFUGE BOUNDARY

EPHEMERAL/PERENNIAL AND LIVESTOCK GRAZING UNDER DWMA/ACEC ALTERNATIVE

- INACTIVE ALLOTMENTS
- ACTIVE ALLOTMENTS
- HIGH POTENTIAL FOR GRAZING

} REASONABLY FORESEEABLE GRAZED

- REASONABLY FORSEEABLE UNGRAZED

ALLOTMENTS

1 ACTON-FARRIER
2 ARROW CANYON
3 AZURE RIDGE
4 BILLY GOAT PEAK
5 BLACK BUTTE
6 BUNKERVILLE
7 CHRISTMAS TREE PASS
8 CRESCENT PEAK
9 DRY LAKE
10 FLAT TOP MESA
11 GLENDALE
12 GOLD BUTTE
13 HEN SPRINGS
14 HIDDEN VALLEY
15 IRETEBA PEAKS
16 JACKRABBIT
17 JEAN LAKE
18 KYLE CANYON
19 LIME SPRINGS
20 LOWER MORMON MESA
21 LUCKY STRIKE
22 McCULLOUGH MOUNTAIN
23 MESA CLIFF
24 MESQUITE COMMUNITY
25 MUDDY MOUNTAIN
26 MUDDY RIVER
27 NEWBERRY MOUNTAINS
28 OVERTON ARM
29 PITTMAN WELL
30 PULSIPHER WASH
31 ROACH LAKE
32 MOUNT STIRLING
33 ROX
34 SOUTH POINT
35 SPRING MOUNTAIN
36 STUMP SPRINGS
37 SUNRISE MOUNTAIN
38 TABLE MOUNTAIN
39 TOQUOP SHEEP
40 UPPER MORMON MESA
41 UTE
42 WHEELER SLOPE
43 WHEELER WASH
44 WHITE BASIN
45 YOUNTS SPRING
46 5SSS (INDIAN SPRINGS)
47 6666 (RIVER MOUNTAINS)
48 7777 (LAS VEGAS VALLEY)
49 9999 (LAKE MEAD NRA)
50 VIRGIN RIVER BOTTOM
51 CARSON SLOUGH
52 COUNTY LINE
53 GRAPEVINE-ROCK VALLEY

Table 2-9. Proposed Areas of Critical Environmental Concern.

MAP #	NAME OF ACEC	ACREAGE	VALUES
1	Piute/Eldorado	270,063	Tortoise habitat
2	Arrow Canyon/ Coyote Springs	77,500	Tortoise habitat
3	Mormon Mesa	136,150	Tortoise habitat
4	Gold Butte	314,225	Wildlife, cultural values
5	Big Dune	1,960	Candidate species
6	Ash Meadows	37,078	T&E species
7	Amargosa Mesquite	9,600	Unique vegetation
8	Stump Spring	560	Cultural values
9	Bird Spring	160	Cultural values
10	Sloan Rock Art	320	Cultural values
11	River Mountains	14,600	Wildlife
12	Rainbow Gardens	43,800	Geological values
13	Hidden Valley	3,360	Cultural/scenic
14	Arrow Canyon Paleontological	3,100	Cultural values paleontological
15	Virgin River	5,995	Cultural, wildlife and riparian values
16	Virgin Mountains	46,000	Vegetation/wildlife
17	Crescent Mining Town	460	Cultural values
18*	Gold Butte Historic Townsite	120	Cultural values
19*	Red Rock Spring	640	Cultural values
20	Arden Historic Sites	6,320	Cultural values
21	Keyhole Canyon Rock Art Site	300	
22	Devil's Throat	640	Geologic values
23	Whitney Pockets	160	Cultural values
	TOTAL ACRES	**969,591**	

*Within other ACECs

SPECIAL MANAGEMENT AREAS

1. PIUTE/ELDORADO ACEC

Values: Proposed critical habitat for desert tortoise and stands of teddy bear cholla (*Opuntia biglovii*).

Acreage: 270,063 acres

Resource constraints:

Lands:

Acquire non-Federal lands where available on a willing seller basis.

Designate as a right-of-way avoidance area except within designated corridors. Rights-of-way may be granted if determined appropriate and after thorough environmental review and identification of mitigative measures. All rights-of-way granted within this area will be subject to standard terms and conditions of such authorizations, as well as the following special terms and conditions:

Similar types of utilities shall be co-located whenever possible and feasible.

Minerals: (applies to entire ACEC)

Open to 1872 *Mining Law*. A Plan of Operation will be initiated in advance of any surface-disturbing activities and mitigation for impacts to desert tortoise habitat will be required. Open to fluid minerals leasing, subject to standard stipulations. Close to mineral materials disposal and non-energy mineral leasing.

Range Management:

Close to livestock grazing.

Manage for zero wild burros in the Eldorado Herd Management area.

Roads and access:

Allow new roads only on a temporary basis in response to specific permitted actions.

As funding and time permits, rehabilitate existing roads which are closed through the OHV designation process.

Recreation/OHV: (includes part of Christmas Tree Pass SRMA)

Limit motorized uses to designated roads and trails.

Prohibit all speed competitive OHV events. Other permitted activities will be allowed on a case-by-case basis, consistent with the recovery of the desert tortoise.

Developed recreational facilities may be allowed, following completion of RAMP for Christmas Tree Pass SRMA. Recreation concession leases will not be allowed in the ACEC, but may be allowed elsewhere in the Christmas Tree Pass SRMA

Other:

Manage consistent with the *Endangered Species Act* and the *Recovery Plan for the Desert Tortoise (Mojave Population)*.

Monitor tortoise populations in the ACEC using a methodology developed in cooperation with other States and agencies which are monitoring desert tortoise populations. Methodology should meet the monitoring needs identified in the *Recovery Plan for Desert Tortoise (Mojave Population)* (USFWS 1993).

2. ARROW CANYON/COYOTE SPRINGS VALLEY ACEC

Values: Proposed critical habitat for desert tortoise.

Acreage: 77,500 acres

Resource constraints:

Lands:

Acquire non-federal lands where available on a willing seller basis.

Designate as a right-of-way avoidance area except within designated corridors. Rights-of-way may be granted if determined appropriate and after thorough environmental review and identification of mitigative measures. All rights-of-way granted within this area will be subject to standard terms and conditions of such authorizations, as well as the following special terms and conditions:

Similar types of utilities shall be co-located whenever possible and feasible.

Minerals: (applies to entire ACEC)

Open to 1872 *Mining Law*. A Plan of Operation will be initiated prior to any surface-disturbing activities and mitigation for impacts to desert tortoise habitat will be required during the plan of operation stage. Open to fluid mineral leasing subject to standard stipulations. Close to mineral materials disposal and non-energy mineral leasing.

Range Management: Close to livestock grazing.

Roads and access:

Allow new roads only in response to specific permitted actions.

As funding and time permits, rehabilitate existing roads which are closed through OHV designations.

Recreation/OHV:

Motorized uses will be limited to designated roads and trails.

Prohibit all OHV speed competitive events. Other appropriate permitted activities will be allowed on a case-by-case basis, consistent with the recovery of the desert tortoise.

No recreation concession leases will be allowed.

Other:

Manage consistent with the *Endangered Species Act* and the *Recovery Plan for the Desert Tortoise (Mojave Population)*.

Monitor tortoise populations in the ACEC using a methodology developed in cooperation with other States and agencies which are monitoring desert tortoise populations. Methodology should meet the monitoring needs identified in the *Recovery Plan for Desert Tortoise (Mojave Population)* (USFWS 1993).

3. MORMON MESA ACEC

Values: Proposed critical habitat for desert tortoise.

Acreage: 136,150 acres

Resource constraints:

Lands:

Acquire non-federal lands where available on a willing seller basis.

Designate as a right-of-way avoidance area except within designated corridors. Rights-of-way may be granted if determined appropriate and after thorough environmental review and identification of mitigative measures. All rights-of-way granted within this area will be subject to standard terms and conditions of such authorizations, as well as the following special terms and conditions:

Similar types of utilities shall be co-located whenever possible and feasible.

Minerals: (applies to entire ACEC)

Open to 1872 *Mining Law*. A Plan of Operation will be initiated prior to any surface-disturbing activities and mitigation for impacts to desert tortoise habitat will be required during the plan of operation stage. Open to fluid mineral leasing subject to standard stipulations. Close to mineral materials disposal and non-energy mineral leasing.

Range Management: Close to livestock grazing.

Roads and access:

Allow new roads only in response to specific permitted actions.

As funding and time permits, rehabilitate existing roads which are closed through OHV designations.

Recreation/OHV:

Motorized uses will be limited to designated roads and trails.

Prohibit all OHV competitive events. Other appropriate permitted activities will be allowed on a case-by-case basis, consistent with the recovery of the desert tortoise.

No recreation concession leases or developed recreational facilities will be allowed.

Other:

Manage consistent with the *Endangered Species Act* and the *Recovery Plan for the Desert Tortoise (Mojave Population)* (USFWS 1993).

Monitor tortoise populations in the ACEC using a methodology developed in cooperation with other States and agencies which are monitoring desert tortoise populations. Methodology should meet the monitoring needs identified in the *Recovery Plan for the Desert Tortoise (Mojave Population)* (USFWS 1993).

4. GOLD BUTTE ACEC

Values: Wildlife:

Proposed critical habitat for desert tortoise; habitat for desert bighorn sheep and Gila monster. The area supports a vegetation transition between the Sonoran and Mojave Deserts.

Cultural Resources:

The area contains numerous shelter caves and agave roasting pits used by aboriginal hunter-gatherers including the Virgin Anasazi and the ancestors of the contemporary Paiute. Archaeological remains from the Southern Paiute and Anasazi are also found at Red Rock Spring. A dam and storage room built into the rock formations in historic times remain at Whitney Pocket.

Native American groups have identified the area as a Traditional Lifeways Area.

Several old mining sites of historic interest and value, including the Gold Butte Townsite, are found in the ACEC. The town contains the remains of a small tent camp, dating from the first decade of the 20th century.

Geologic Resources:

Devil's Throat is a sinkhole approximately 165 feet deep and 100 feet in diameter; this formation possesses scientific value in that sinkholes are uncommon in desert environments. In addition, Devil's Throat has been designated as a Natural Hazard Area because of the danger it poses to the public.

Scenic Values:

The area contains an array of contrasts, including pinyon-juniper woodlands, rugged terrain, colorful rock formations, and panoramic views of Lake Mead and surrounding deserts.

Acreage: 314,225 acres

Resource constraints:

Lands:

Acquire non-federal lands where available on a willing seller basis.

Designate as a right-of-way avoidance area except within designated corridors. Rights-of-way may be granted if determined appropriate and after thorough environmental review and identification of mitigative measures. All rights-of-way granted within this area will be subject to standard terms and conditions of such authorizations, as well as the following special terms and conditions:

Similar types of utilities shall be co-located whenever possible and feasible.

Minerals: (applies to entire ACEC, except Devils Throat, Gold Butte Townsite, Red Rock Springs Cultural sites, Whitney Pockets, and Gold Butte Traditional Lifeways Area)

Open to 1872 *Mining Law*. Mitigation for impacts to desert tortoise habitat will be required during the plan of operation stage. Open to fluid mineral leasing subject to standard stipulations. Close to mineral materials disposal and non-energy mineral leasing.

Devil's Throat, Gold Butte Townsite, Red Rock Spring site, and Whitney Pockets (1,560 acres)

Close to the operation of the mining laws. A Plan of Operations will be required on valid existing rights to mitigate impacts to cultural resources.

Close to mineral materials disposal and non-energy mineral leasing.

Open to fluid mineral leasing subject to no surface occupancy.

Gold Butte Traditional Lifeway Area

Close to operation of all mineral laws. A Plan of Operations will be required on valid existing rights.

Range Management: Close to livestock grazing.

Manage the Gold Butte Herd Management Area for a population level of zero burros.

Roads and access:

Allow new roads only in response to specific permitted actions.

As funding and time permits, rehabilitate existing roads which are closed through OHV designations.

Recreation/OHV:

Prepare an RAMP to consider the need for semi-developed camping/picnic areas. Motorized uses will be limited to designated roads and trails.

Prohibit all OHV competitive events. Other appropriate permitted activities will be allowed on a case-by-case basis, consistent with the recovery of the desert tortoise.

No recreation concession leases will be allowed.

Install interpretive signing at Devil's Throat.

Other:

Manage consistent with the *Endangered Species Act* and the *Recovery Plan for the Desert Tortoise (Mojave Population)* (USFWS 1993).

Monitor tortoise populations in the ACEC using a methodology developed in cooperation with other States and agencies which are monitoring desert tortoise populations. Methodology should meet the monitoring needs identified in the Draft *Recovery Plan for the Desert Tortoise (Mojave Population)* (USFWS 1993).

Monitor for impacts to cultural sites from recreational uses or natural erosion.

5. BIG DUNE ACEC

Values: Four candidate invertebrate species, three of which are endemic to the dunes.

Acreage: 1,960 acres

Resource constraints:

Lands: Designate as a right-of-way avoidance area.

Minerals: (applies to entire ACEC)

Close to the operation of the mining laws. Mitigation for impacts to candidate species will be required on valid existing rights during the plan of operations stage. Close to mineral materials disposal and non-energy mineral leasing. Open to fluid mineral leasing subject to no surface occupancy.

Range Management: Not applicable as the area is unalloted.

Roads and access: Allow new roads only on a temporary basis.

As funding and time permits, rehabilitate existing roads which are closed through the OHV designation process.

Recreation/OHV: (includes Big Dune SRMA)

Prior to the completion of Beetle Habitat Study, manage approximately 50 percent of the dunes as closed to all OHV use. The remaining 50 percent of the dunes would be open to casual OHV use. Long term OHV management would be based on the results of the habitat study.

Allow no competitive OHV events. Other permitted activities will be allowed on a case-by-case basis, consistent with BLM policy for managing habitats of candidate species. OHV use will be restricted to designated areas.

Prepare a RAMP for Big Dune SRMA concurrent with the ACEC management plan.

Sign the dunes with interpretive signs.

Other: Manage consistent with BLM policy for managing habitats of special status species.

6. ASH MEADOWS ACEC

Values: Thirteen special status plant and animal species and essential habitat for a unique wetlands/meadow ecosystem.

Acreage: 37,078 acres of BLM land (pending withdrawal of 9,243 acres by USFWS). 27,835 final total anticipated

Resource constraints:

Lands:

Acquire private lands within the ACEC, but outside the refuge boundary, when such lands are available (approximately 500 acres).

Designate as a right-of-way avoidance area, except within the designated corridors.

Transfer 9,243 acres of BLM inholdings within the Ash Meadows NWR boundary to the USFWS.

Minerals: (applies to entire ACEC)

Close to the operation of the mining laws, mineral materials disposal, non-energy mineral leasing and fluid mineral leasing.

Range Management:

Close the following allotments to livestock grazing: Ash Meadows Allotment, Carson Slough Allotment and Grapevine-Rock Valley Allotment

Wild Horse and Burro Management:

Ash Meadows Herd Area will be managed for a population level of zero animals. Horses and burros will be removed as expeditiously as possible from Ash Meadows Herd Area; the USFWS will be encouraged to fence the Refuge boundary.

Roads and access:

Allow new roads only on a temporary basis.

As funding and time permits, rehabilitate existing roads which are closed through OHV designations.

Recreation/OHV:

Do not allow competitive OHV events or commercial permitted activities. Other permitted activities will be considered on a case-by-case basis.

Casual OHV use will be limited to designated roads and trails.

No recreation concession leases or developed recreational facilities will be allowed.

Other:

Manage the ACEC consistent with the goals and objectives of the *Ash Meadows Recovery Plan*.

Develop a cooperative agreement with the USFWS for management of the Ash Meadows ACEC.

Prohibit BLM discretionary activities which would decrease spring flow in Ash Meadows NWR/ACEC or result in negative impacts to threatened, endangered or candidate species.

7. AMARGOSA MESQUITE ACEC

Values: Uncommon vegetative community and high value as *Phainopepla* and other wildlife habitat.

Acreage: approximately 6,080 acres.

Resource constraints:

Lands: Designate as a right-of-way avoidance area, except within the designated corridor.

Minerals:

Close to the operation of the mining laws. A mining Plan of Operations would be required for valid existing rights. Open to fluid mineral leasing subject to no surface occupancy. Close to mineral materials disposal and non-energy mineral leasing.

Range Management: Manage for grazing Prescription 2.

Roads and access: Allow new roads only in response to specific permitted actions.

As funding and time permits, rehabilitate existing roads which are closed through the OHV designation process.

Forest and Woodlands Management: Do not allow firewood harvest.

Recreation/OHV: Casual OHV use will be limited to designated roads and trails. Permitted activities will be allowed on a case-by-case basis.

8. STUMP SPRING PREHISTORIC/HISTORIC ACEC

Values: This is a complex of several food processing loci and campsites reflecting prehistoric mesquite collection practices and a spring stop on the *Old Spanish Trail/Mormon Road* historic trail. This area may also provide habitat for *Phainopepla*, a silky flycatcher which appears to be declining in some areas.

Acreage: 560 acres

Resource constraints:

Lands: Designate as a right-of-way avoidance area. Rights-of-way may be granted if determined appropriate and after thorough environmental review and identification of mitigative measures. All rights-of-way granted within this area will be subject to standard terms and conditions of such authorizations, as well as the following special terms and conditions:

Similar types of utilities shall be co-located whenever possible and feasible.

Minerals: (applies to the entire ACEC)

Close to the operation of the mining laws. A plan of operations will be required on valid existing rights to mitigate impacts to cultural resources. Close to mineral material disposal and non-energy mineral leasing. Open to fluid mineral leasing subject to no surface occupancy.

Roads and access: Do not allow new roads.

Recreation/OHV: Casual OHV use will be limited to designated roads and trails.

No competitive OHV events will be allowed. Other commercial permitted activities will be allowed on a case-by-case basis.

Other: Monitor for impacts to the sites from recreational uses or natural erosion.

9. BIRD SPRING ARCHAEOLOGICAL SITE ACEC

Values: Cultural Resources - This site consists of a large rockshelter with deep midden deposits. A preliminary test excavation in 1982 indicated that the site contains data important in the understanding of regional prehistory.

Acreage: 160 acres

Resource constraints:

Lands: Designate as a right-of-way avoidance area. Rights-of-way may be granted if determined appropriate and after thorough environmental review and identification of mitigative measures. All rights-of-way granted within this area will be subject to standard terms and conditions of such authorizations, as well as the following special terms and conditions:

Similar types of utilities shall be co-located whenever possible and feasible.

Minerals: (applies to entire ACEC)

Close to the operation of the mining laws. A Plan of Operations will be required on valid existing rights to mitigate impacts to cultural resources. Close to mineral materials disposal and non-energy mineral leasing. Open to fluid mineral leasing subject to no surface occupancy.

Roads and access: Do not allow new roads.

Recreation/OHV: Casual OHV use will be limited to designated roads and trails.

No competitive OHV events will be allowed. Other commercial permitted activities will be allowed on a case-by-case basis.

Other: Monitor for impacts to the sites from recreational uses or natural erosion.

10. SLOAN ROCK ART SITE ACEC

Values: Cultural Resources - The shallow canyon contains a high concentration of prehistoric rock art. Several hundred petroglyph panels extend for more than one-half mile along the canyon walls.

Acreage: 320 acres

Resource constraints:

Lands: Designate the entire ACEC as a right-of-way avoidance area. Rights-of-way may be granted if determined appropriate and after thorough environmental review and identification of mitigative measures. All rights-of-way granted within this area will be subject to standard terms and conditions of such authorizations, as well as the following special terms and conditions:

Similar types of utilities shall be co-located whenever possible and feasible.

Minerals: (applies to entire ACEC)

Close to the operation of the mining laws. A Plan of Operations will be required on valid existing rights to mitigate impacts to cultural resources. Close to mineral materials disposal and non-energy mineral leasing. Open to fluid mineral leasing subject to no surface occupancy.

Roads and access: Do not allow new roads.

Recreation/OHV: Casual OHV use will be limited to designated roads and trails.

No competitive OHV events will be allowed. Other commercial permitted activities will be allowed on a case-by-case basis.

Other: Monitor for impacts to the sites from recreational uses or natural erosion.

11. RIVER MOUNTAINS ACEC

Values: Desert bighorn sheep, scenic viewshed for Boulder City and Henderson.

Acreage: 14,600 acres

Resource constraints:

Lands:

Designate as a right-of-way avoidance area, except within the designated corridor.

Authorization of future communication site rights-of-way will be limited to the following:

Existing established communication sites.

No future communication site rights-of-way will be granted on any individual established communication site until a site management plan has been approved for that site.

Access will be by existing roads or helicopter only.

Minerals: (applies to entire ACEC)

Open to the operation of the mining laws. A mining Plan of Operations will be required and impacts to desert bighorn sheep will be mitigated. Open to fluid mineral leasing. Closed to non-energy mineral leasing and mineral material disposal.

Range Management: Close to livestock grazing (River Mountain Allotment).

Roads and access: Allow new roads only in response to specific permitted actions.

As funding and time permits, rehabilitate existing roads which are closed through the OHV designation process.

Recreation/OHV: Motorized uses will be limited to designated roads and trails.

Do not allow competitive OHV events. Other appropriate permitted activities will be allowed on a case-by-case basis, consistent with the goals and objectives of the *Rangewide Plan for Managing Habitat of Desert Bighorn Sheep on Public Lands* (USDI, BLM 1988b). No recreation concession leases will be allowed.

12. RAINBOW GARDENS ACEC

Values: Cultural Values - Gypsum Cave is located in the northeastern portion of the area and contains some of the earliest evidence of human occupation in southern Nevada.

Scenic Quality - Outstanding scenic values in the Rainbow Gardens area. Unique volcanic outcrops colored in red hues contrasting with black volcanics. Outstanding panoramas of the surrounding deserts and Lake Mead.

Botanical Values - Two special status plant species are located in the Sunrise Mountain area: *Arctomecon californica* (bearpoppy) and *Agave utahensis* var. *eborispina* (century plant).

Historic Mining - The historic Frenchman mine is located in the southwestern portion of the ACEC.

Geologic Values - The Frenchman Mountain/Rainbow Gardens area is featured in many introductory geology textbooks and is visited each year by many geologists and students. The area is significant because it is an excellent example of crustal extension and contains extraordinary exposures of Paleozoic and Mesozoic strata. In addition, the area has been published in a guidebook to the 100 most significant and accessible geologic localities in the western U.S. and Canada by the Geologic Society of America.

Acreage: 43,800 acres

Resource constraints:

Lands: Designate as a right-of-way avoidance area except for designated corridors. Rights-of-way would be granted if determined appropriate after complete environmental review and the development of mitigation measures, as needed.

Designate one location for communication sites.

Minerals:

Close to the operation of the 1872 *Mining Law*, mineral material disposal and non-energy mineral leasing.

Roads and access:

New roads would only be allowed if approved through an activity plan, plan of operation, or other use authorizations.

As funding and priorities permit, rehabilitate existing roads which become closed through the OHV designation process.

Recreation/OHV:

Manage the area for the following recreation opportunities: mountain bike riding, hiking, camping, horseback riding, interpretation, picnicking, photography, and nature study.

Limit motorized uses to designated roads and trails.

Prohibit competitive OHV events. Other non-OHV competitive and commercial permitted events and activities and recreation concession leases are appropriate.

Prepare a RAMP to consider appropriate areas for the development of camping and/or picnicking facilities, and possible designation of a Back Country Byway.

Prohibit recreational and target shooting within the ACEC. Legal hunting would be appropriate subject to NDOW regulations.

13. HIDDEN VALLEY DISTRICT ACEC

Values: Cultural Resources - This area is comprised of rock art, a rockshelter, and campsite archeological district in the Muddy Mountains.

Acreage: 3,360 acres

Resource constraints:

Lands: Designate as a right-of-way avoidance area. Rights-of-way may be granted if determined appropriate and after thorough environmental review and identification of mitigative measures. All rights-of-way granted within this area will be subject to standard terms and conditions of such authorizations, as well as the following special terms and conditions:

Similar types of utilities shall be co-located whenever possible and feasible.

Minerals: (applies to entire ACEC)

Close to the operation of the mining laws. A Plan of Operations will be required on valid existing rights to mitigate impacts to cultural resources. Close to mineral materials disposal and non-energy mineral leasing. Open to fluid mineral leasing subject to no surface occupancy.

Range Management: Close to livestock grazing.

Roads and access: Do not allow new roads.

Recreation/OHV: Closed to all OHV use.

Other permitted activities will be allowed on a case-by-case basis.

Other: Monitor for impacts to cultural sites from recreational uses or natural erosion.

14. ARROW CANYON PALEONTOLOGICAL SITE ACEC

Values: The archaeological portion of the district consists of hundreds of rock art panels along the canyon walls. The paleontological values consist of embedded tracks of extinct birds.

Acreage: 3,100 acres

Resource constraints:

Lands: Designate as a right-of-way avoidance area. Rights-of-way may be granted if determined appropriate and after thorough environmental review and identification of mitigative measures. All rights-of-way granted within this area will be subject to standard terms and conditions of such authorizations, as well as the following special terms and conditions:

Similar types of utilities shall be co-located whenever possible and feasible.

Minerals: (applies to entire ACEC)

Close to 1872 *Mining Law*. Mitigation for impacts to cultural will be required during the plan of operation stage on valid existing rights. Close to mineral materials disposal and non-energy mineral leasing. Open to fluid mineral leasing subject to no surface occupancy.

Range Management: Manage for grazing Prescription 2.

Roads and access: Do not allow new roads.

Recreation/OHV: Casual OHV use will be limited to designated roads and trails. No competitive OHV events will be allowed. Other commercial permitted activities will be allowed on a case-by-case basis.

Other: A plan for specimen recovery at the Bird Tracks Area will be required for any Federal actions. Monitor for impacts to cultural sites from recreational uses or natural erosion.

15. VIRGIN RIVER ACEC

Values:

Threatened and Endangered Species: Woundfin and Virgin River roundtail chub, endangered species. Southwest willow flycatcher, proposed endangered.

Cultural and Historic Resources: The Virgin River Anasazi Prehistoric District is a series of pueblos and pit structures situated on terraces that overlook the river. These structures were constructed by the Virgin Anasazi who farmed the floodplain from approximately A.D. 500 to 1150.

Riparian Resources: The Virgin River supports the largest area of riparian habitat administered by the BLM in the planning area.

Acreage: 5,995 acres (approximately 196 acres of aquatic and riparian habitat)

Resource constraints:

Lands: If available, acquire non-federal lands along the Virgin River.

Designate as a right-of-way avoidance area except within designated corridors. Rights-of-way may be granted if determined appropriate and after thorough environmental review and identification of mitigative measures. All rights-of-way granted within this area will be subject to standard terms and conditions of such authorizations, as well as the following special terms and conditions:

Similar types of utilities shall be co-located whenever possible and feasible.

Minerals:

Close to the operation of mining laws. A Plan of Operations is required on valid existing rights to ensure that impacts to cultural resources and T&E species are mitigated and site integrity maintained.

Close to mineral materials disposal and non-energy mineral leasing.

Open to fluid mineral leasing subject to no surface occupancy.

Range Management: Close to livestock grazing.

Roads and access:

Allow no new roads.

As funding and time permits, rehabilitate existing roads which are closed through the OHV designation process.

Recreation/OHV:

Close to all OHV use. Prohibit all competitive and non-competitive OHV events. Other appropriate permitted activities will be allowed on a case-by-case basis, consistent with the recovery of the desert tortoise.

No recreation concession leases will be allowed.

Study the Virgin River for possible designation as a recreational river.

Manage the area for semi-primitive motorized recreation opportunities including hiking, camping, hunting, horseback riding, interpretation, picnicking, photography, and nature study.

Manage the area for VRM Management Class II scenic values.

Fire Management:

Prohibit the use of heavy equipment to extinguish wild fires.

Prescribed fire would be allowed only if the fire enhances the scenic, vegetative, and wildlife values in the ACEC.

Other:

Revise the *Virgin River Habitat Management Plan* (USDI, BLM 1984) to include T&E objectives consistent with the *Virgin River Recovery Plan*, riparian objectives, waterfowl objectives, an analysis of the present situation and management prescriptions.

Prepare a tamarisk management plan that includes an analysis of potential management prescriptions.

Delineate the extent and characteristics of the Virgin River riparian zone, including tamarisk encroachment, in order to identify improvement potential.

Where available, acquire instream water rights.

Monitor water quality and bring into compliance with EPA standards.

Monitor for impacts to cultural sites from recreational uses or natural erosion.

16. VIRGIN MOUNTAIN ACEC

Values: Wildlife: The diversity of botanical resources in the area results in a high diversity of all wildlife species. The Virgin Mountains provide habitat for desert bighorn, mule deer and many other species of wildlife. The area is potential habitat for peregrine falcon.

Botanical Resources: The area supports a number of unusual botanical resources, including a small isolated stand of Douglas-fir in the Virgin Mountain area, unique in its location as the southern-most extension in Nevada and the only occurrence in Clark County, small isolated stands of white fir and ponderosa pine, and the only known occurrence of Arizona cypress in Nevada. The Virgin Mountains support a high diversity of botanical resources because of their location in the transition zone between the Great Basin, Mojave, and Sonoran desert biomes.

Scenic Quality: The area contains a vast array of scenic values and contrasts including pinyon/juniper woodlands, rock formations, rugged topography, and outstanding panoramas of the surrounding deserts and Lake Mead.

Acreage: approximately 46,000 acres.

Resource constraints:

Lands:

Designate as a right-of-way avoidance area. Rights-of-way may be granted if determined appropriate and after thorough environmental review and identification of mitigative measures. All rights-of-way granted within this area will be subject to standard terms and conditions of such authorizations, as well as the following special terms and conditions:

Similar types of utilities shall be co-located whenever possible and feasible.

Minerals: (Applies to entire ACEC)

Close to the operation of mining laws. A Plan of Operations is required on valid existing rights and impacts to ensure that impacts to other resources will be mitigated.

Close to mineral materials disposal and non-energy mineral leasing. Open to fluid mineral leasing.

Range Management: Close to livestock grazing.

Roads and access:

Allow new roads only in response to specific permitted actions.

As funding and time permits, rehabilitate existing roads which are closed through the OHV designation process.

Forest and Woodlands Management:

Prohibit the removal of live trees and dead or down firewood from the ACEC.

Recreation/OHV:

Allow semi-developed recreational facilities.

OHV use will be limited to designated roads and trails.

Prohibit all competitive OHV events. Other appropriate permitted activities will be allowed on a case-by-case basis.

No recreation concession leases will be allowed.

Manage the area for semi-primitive motorized recreation opportunities including hiking, camping, hunting, mountain biking, horseback riding, interpretation, picnicking, photography, and nature study.

Manage the area for VRM Management Class II scenic values.

Fire Management:

Prohibit the use of heavy equipment (graders, bulldozers, front end loaders, etc.) to extinguish wild fires.

Prescribed fire would be allowed only if the fire enhances the scenic, vegetative, and wildlife values in the ACEC.

Other:

Where available, acquire water rights to springs and manage as natural riparian systems.

17. CRESCENT MINING TOWNSITE ACEC

Values: Cultural Resources - The remains of structural features and the artifacts from a short-lived, early 20th century mining town are present.

Acreage: 460 acres

Resource constraints:

Lands: Rights-of-ways may be granted if determined appropriate, after complete environmental review and mitigation development, as needed. All ROWs granted in this area will be subject to standard terms and conditions for such authorizations, as well as the following special terms and conditions:

Similar types of utilities shall be co-located whenever possible and feasible.

Minerals: (applies to entire ACEC)

Close to the operation of the mining laws. A Plan of Operations will be required on valid existing rights to mitigate impacts to cultural resources. Close to mineral materials disposal and non-energy mineral leasing. Open to fluid mineral leasing subject to no surface occupancy.

Roads and access: Do not allow new roads.

Recreation/OHV: Casual OHV use will be limited to designated roads and trails.

No competitive OHV events will be allowed. Other commercial permitted activities will be allowed on a case-by-case basis.

Other: Monitor for impacts to the sites from recreational uses or natural erosion.

18. GOLD BUTTE HISTORIC TOWN SITE ACEC

See **Gold Butte ACEC (No. 4)** narrative for a description of the values and resources of this ACEC.

19. RED ROCK SPRING ARCHEOLOGICAL SITE ACEC

See **GOLD BUTTE ACEC (No. 4)** narrative for a description of the values and resources of this ACEC.

20. ARDEN HISTORIC SITES ACEC

Values: The area contains the remains of a 10-mile long pipeline project, from Cottonwood Spring to Sloan siding, constructed in 1905 by the *San Pedro, Los Angeles and Salt Lake Railroad* to supply water for steam engines. The remains of three construction camps and other mining-related sites and features are located within the ACEC.

Acreage: 6,320 acres

Resource Constraints:

Lands: Designate as a right-of-way avoidance area. Rights-of-way may be granted if determined appropriate and after environmental review and development of mitigative measures. All rights-of-way granted within this area will be subject to the standard terms and conditions for such authorizations as well as the following special terms and conditions:

Similar types of utilities shall be co-located whenever possible and feasible.

Minerals: (applies to entire ACEC)

Close to the operation of the mining laws. A Plan of Operations will be required on valid existing rights to mitigate impacts to cultural resources. Close to mineral material disposal and non-energy mineral leasing. Open to fluid mineral leasing, subject to no surface occupancy.

Recreation/OHV:

Casual OHV use will be limited to designated roads and trials.

No competitive OHV events will be allowed. Other commercial permitted activities will be allowed on a case-by-case basis.

Other: Monitor for impacts to the sites from recreational uses or natural erosion.

21. KEYHOLE CANYON ROCK ART SITE ACEC

Values: Cultural Resources - This fenced archaeological site contains numerous petroglyphs.

Acreage: 300 acres

Resource constraints:

Lands: Designate as a right-of-way avoidance area. Rights-of-way may be granted if determined appropriate and after thorough environmental review and identification of mitigative measures. All rights-of-way granted within this area will be subject to standard terms and conditions of such authorizations, as well as the following special terms and conditions:

Similar types of utilities shall be co-located whenever possible and feasible.

Minerals: (applies to entire ACEC)

Close to the operation of the mining laws. A Plan of Operations will be required on valid existing rights to mitigate impacts to cultural resources. Close to mineral materials disposal and non-energy mineral leasing. Open to fluid mineral leasing subject to no surface occupancy.

Roads and access: Do not allow new roads.

Recreation/OHV: Casual OHV use will be limited to designated roads and trails.

No competitive OHV events will be allowed. Other commercial permitted activities will be allowed on a case-by-case basis.

Other: Monitor for impacts to the sites from recreational uses or natural erosion.

22. DEVIL'S THROAT ACEC

See **Gold Butte ACEC (No. 4)** narrative for a description of the values and resources of this ACEC.

23. WHITNEY POCKETS ARCHEOLOGICAL COMPLEX ACEC

See **GOLD BUTTE ACEC (No. 4)** narrative for a description of the values and resources of this ACEC.

CHAPTER 3

AFFECTED ENVIRONMENT

CHAPTER 3

AFFECTED ENVIRONMENT

INTRODUCTION

Chapter 3 of the *Draft Stateline Resource Management Plan/Environmental Impact Statement* contained the environmental components of the planning area which could be impacted by the implementation of the proposed alternatives. These included lands, minerals, soils, water resources, air quality, vegetation, wildlife habitat, livestock grazing, paleontological and cultural resources, visual resources, recreation, wilderness, natural areas, and socio-economic conditions. This Supplement is tiered to the *Draft RMP/EIS* and the reader is referred to that document for a complete discussion of SRA and its public land resources. Chapter 3 of the Supplement will present new data for those resources or programs which comprise the four new issues addressed in this effort: 1) rangeland classification; 2) utility corridor locations and widths; 3) mineral management/post Congressional non-designation of Wilderness Study Areas (WSAs); and 4) desert tortoise management in conformance with the *Recovery Plan for Desert Tortoise (Mojave Population)* (USFWS 1993). Additional data is also presented for wild horse and burro management and socio-economic values. This information is considered critical to the reader's understanding of the management goals and direction proposed in Alternative E of the Supplement.

RANGELAND CLASSIFICATION

Background

On December 7, 1968, a special grazing rule which applied to all of Clark County was published in the *Federal Register* (Vol. 33, No.238). The Ephemeral Range Rule gave the BLM District Manager the authority to designate allotments as ephemeral rangeland, provided that both the District Advisory Board and BLM Nevada State Director were in agreement. On November 13, 1969, the State Director concurred with the proposal to classify allotments as ephemeral in Clark County. On April 15, 1970, additional allotments were classified as ephemeral in Nye County.

The criteria for ephemeral rangeland, as stated in the Ephemeral Range Rule, are as follows:

1. Ephemeral areas generally fall below the 3,200 foot contour.
2. Below the 8 inch precipitation isoline.
3. A minor percentage of the total plant composition is made up of desirable perennial forage plants. The potential to improve range condition and produce a dependable forage supply by applying intensive management is lacking.

The 1992-93 range reclassification effort keyed in on the current year's vegetative production of all species by ecological site. Twenty-four allotments, which met the following criteria, were chosen for analysis:

1. Allotments considered active - use by livestock in the past 10 years and expected to be grazed in the future, if grazing systems can be implemented.

2. Any allotment which has an Herd Management Area (HMAs) within the boundary. This included any unallotted area where HMAs were identified.

The desirable perennial forage species considered for classification were selected because of their palatability for livestock. The Proper Use Factors (PUF) for the State of Nevada and the Las Vegas District and the desirability ratings developed from 1976 to 1979 were used to determine which species were desirable perennial forage species. The following species were considered desirable forage for the purpose of reclassifying allotments currently designated as ephemeral.

Grasses:

Indian ricegrass, big galleta, sand dropseed, slim tridens (TRMU), squirreltail (SIHY), desert needlegrass, and bush muhly (MUPO2).

Forbs:

Globemallow (SPAM2)

Shrubs:

Bud sagebrush (ARSP5), fourwing saltbush (ATCA2), shadscale (ATCO), cliffrose (COME5), mormon tea (EPNV), shrub buckwheat (ERIOG), winterfat, spiny hopsage (GRSP), white ratany (KRGR), range ratany (KRPA), spiny mendora (MESP2), bitterbrush (PURSH), Anderson wolfberry (LYAN), and cattle saltbush (ATPO).

The most prevalent introduced annuals identified were Russian thistle (SAKA), cheatgrass (BRTE), red brome (BRRU2), Mediterranean grass (SCBA) and filarie (ERCI6). Since introduced annual production can be used to lower an ecological rating, they were not considered when determining the percentage of the community that was comprised of perennial forage species. Based on the current year's production (1992) of desirable forage species, as noted above, the following criteria were used to classify each allotment:

1. Any vegetative community producing 65 lbs/acre or greater of desirable perennial forage species and/or located above 3200 feet would be considered perennial. A review of all the vegetative communities within an allotment using these criteria would determine the classification of the entire allotment.

2. Classified as Ephemeral if 0 to 20 percent of the allotment acreage is comprised of perennial vegetative communities.

3. Classified as Ephemeral/Perennial if 21 to 79 percent of the allotment acreage is comprised of perennial vegetative communities.

4. Classified as Perennial if 80 percent or more of the allotment acreage is comprised of perennial vegetative communities.

Table 3-1 shows percentages of perennial and ephemeral range for each allotment, based on the criteria noted above. The number of acres above 3,200 feet is also identified.

WILD HORSES AND BURROS

Background

On December 15, 1971, Congress enacted the *Wild and Free-Roaming Horse and Burro Act*, authorizing BLM to manage wild horses and burros on the public land. The Act mandated that wild and free-roaming horses and burros be protected from unauthorized capture, branding, harassment, or death. These animals are to be considered an integral part of the natural system, based on their distribution at the time the law was enacted.

Table 3-1. Vegetation classification results.

ALLOTMENT NAME	BLM ACRES	PERCENT PERENNIAL VEG.TYPES	PERCENT EPHEMERAL VEG. TYPES	ACRES >3,200' PERENNIAL
Acton Farrier	45,536	3	97	0
Arrow Canyon	88,448	58	42	9,959
Billygoat Pk.	49,133	68	32	26,020
Bunkerville	128,869	59	41	12,805
Flat Top	5,338	72	28	0
Gold Butte	172,549	55	45	68,603
Hen Springs	22,756	32	68	7,322
Hidden Valley	69,463	45	55	0
Ireteba Peaks	252,313,	49	51	87,837
Jackrabbit	3,054	20	80	0
Kyle Canyon	29,620	100	0	17,860
Lower Mormon Mesa	46,356	22	78	0
Lucky Strike	98,420	100	0	90,144
Mesa Cliff	14,072	69	31	0
Muddy Mtns.	189,409	20	80	0
Roach Lake	18,718	66	34	6,990
Rox	21,736	49	51	0
Spring Mtn.	237,890	90	10	186,867
Table Mtn.	88,537	97	3	68,559
Upper Mormon Mesa	47,659	23	77	2,777
Wheeler Slope	72,277	100	0	72,277
Wheeler Wash	70,115	84	16	49,057
White Basin	89,790	51	49	5,822
Younts Spring	14,401	100	0	14,401
Total Acreage	1,876,432			727,308

Note: Acres used were from Clark County MFP

Wild horses and burros are found in many areas throughout SRA, including the Spring Mountains, the Muddy Mountains, the Eldorado Mountains, in the Gold Butte region, and in the vicinity of Blue Diamond (see Map 2-3). The wild horse population is estimated at approximately 260 animals, while the planning area supports approximately 540 burros. The number of wild horses and burros occurring within SRA represents less than 2 percent of Nevada's wild horse population and approximately 40 percent of the state's burro numbers. The Gold Butte area contains one of the largest herds of burros in Nevada, totaling an estimated 254 animals.

Table 3-2 shows wild horse herd information and includes the Ash Meadows Herd Management Area (HMA) which was inadvertently omitted from prior planning documents. Due to conflicts with private lands and threatened and endangered species, the Appropriate Management Level (AML) was set at zero for this HMA. Whenever wild horses or burros move into this HMA, they must be removed. In 1985, approximately 215 horses, representing the entire population at that time, were removed from the Ash Meadows HMA. Subsequent wild horse and burro removals will maintain HMA at the AML. The National Park Service has recommended that all wild burros should be removed from the Eldorado HMA, in order to lessen impacts on the environment and conflicts with developments within the Lake Mead National Recreation Area.

The U.S. Forest Service (USFS) is currently preparing a planning document for their Congressionally-designated Spring Mountain National Recreation Area. This effort will propose management direction for wild horse and burros. The BLM will continue to work with the USFS to properly manage wild horses and burros since the animals cross administrative boundaries. The management of herd numbers is a joint responsibility of BLM and USFS, since the *Wild Horse and Burro Act* requires that wild horses and burros be managed in balance with the ecosystem. A critical part of the Spring Mountain HMA occurs within USFS administered lands. The USFS has established standards for riparian areas that will help guide future joint management decisions. Until the Forest Service management plan is completed, any lands transferred through the *Forest Enhancement Act* will be managed under BLM planning documents, in cooperation with the USFS.

UTILITY CORRIDORS

Background

Corridors previously designated by BLM in Stateline Resource Area are limited to those established in the *Esmeralda-Southern Nye RMP*, Planning Area B, approved in 1985. These corridors were proposed for modification and a network of corridors recommended in the *Draft RMP/EIS*. Federal legislation established corridors in the Aeroject, Apex, and Moapa Indian Reservation land transfers.

The corridors previously recommended in the *Draft RMP/EIS* followed the routes of numerous large (345 kv to 500 kv) electric transmission lines which began to traverse the region as early as the 1940s, following the completion of Hoover Dam and the rapid population growth in California. The Mead substation, which was established for Hoover Dam, was subsequently followed by the McCullough and Eldorado substations in Eldorado Valley.

In recent years, the difficulty of siting new power plants in California, coupled with the cost efficiency of locating power plants closer to western coal sources in Utah, has spawned numerous power projects, and a proliferation of large transmission lines in southern Nevada. The following is a list of major utility lines which have been constructed or are authorized for construction in this region.

Table 3-2. Wild horse and burro herd management areas.

Herd Area Name	Current Population Estimate Horses	Burros	Current Herd Area Status	BLM Acres	Other Federal Acres
Ash Meadows	0	0	HMA	200,000	
Amargosa*	0	0	HMA	10,000	0
Eldorado Mtns.	0	60	HMA	22,734	81,216
Gold Butte	0	254	HMAP	176,878	96,890
Last Chance	0	133	HMA	78,895	0
Mt. Stirling	76	0	HMA	30,855	0
Muddy Mtns.	23	13	HMA	61,226	79,473
Spring Mtn.	235	160	HMA	297,653	0
Totals	**334**	**620**		**898,241**	**257,579**

*Amargosa and Ash Meadows are retained as HMAs, but with 0 animals due to a lack of forage and water on the public lands.

(Source: BLM, Las Vegas District Office files 1991).

1. Numerous Bureau of Reclamation 345 Kv lines connecting Hoover Dam and Davis Dam with California and Arizona (1940 to present).

2. Navajo-McCullough 500 Kv AC line (1974)

3. Intermountain Power Project (IPP)- two lines authorized, one line constructed- 500 Kv DC Delta, UT to California via McCullough substation.

4. Utah-Nevada tie lines- two 345 Kv lines from Utah to the Harry Allen substation at Dry Lake and a 345 Kv and 230 Kv from substation to Las Vegas.

5. Reid Gardner power plant transmission lines to Las Vegas.

6. Kern River Natural Gas line-Wyoming to California.

7. Adelanto-Mead/McCullough 500 Kv California to substations.

8. Pacific Northwest-Pacific Southwest Intertie 750 Kv DC line Columbia River to Mead Substation (Bureau of Reclamation, Western Area Power Administration).

9. Right-of-Way grant for IPP assigned to Los Angeles Water and Power.

A number of proposals for major power projects are also pending either the completion of the environmental analysis process or the approval and issuance of a right-of-way grant. These are the following:

1. Allen Warner Power Plant, 2,000 megawatt coal fired plant at Dry Lake, with two 500 Kv lines to California, one 345 Kv line to Las Vegas.

2. White Pine Power Project, two 500 Kv lines from a proposed coal fired power plant at Ely to California, via Henderson.

3. Southwest Intertie Project (SWIP), one 500 Kv line connecting Midpoint, ID and Delta, UT to Dry Lake substation, north of Las Vegas.

4. Navaho Transmission Project, one 500 kv line from Four Corners, Arizona to Mead substation.

Cogeneration power plants have been completed at Apex and Pabco; a number of other proposals are being considered for pumped storage and gas-fired plants within the city of Las Vegas. These would require from a 69 Kv to 230 Kv lines or access to existing systems. Where feasible, such smaller utilities would be encouraged to use designated corridors. Other regional utilities are preparing to or currently constructing new 230 Kv lines: Valley Electric will build from Pahrump to Mead substation; Overton Power from Overton to Mesquite.

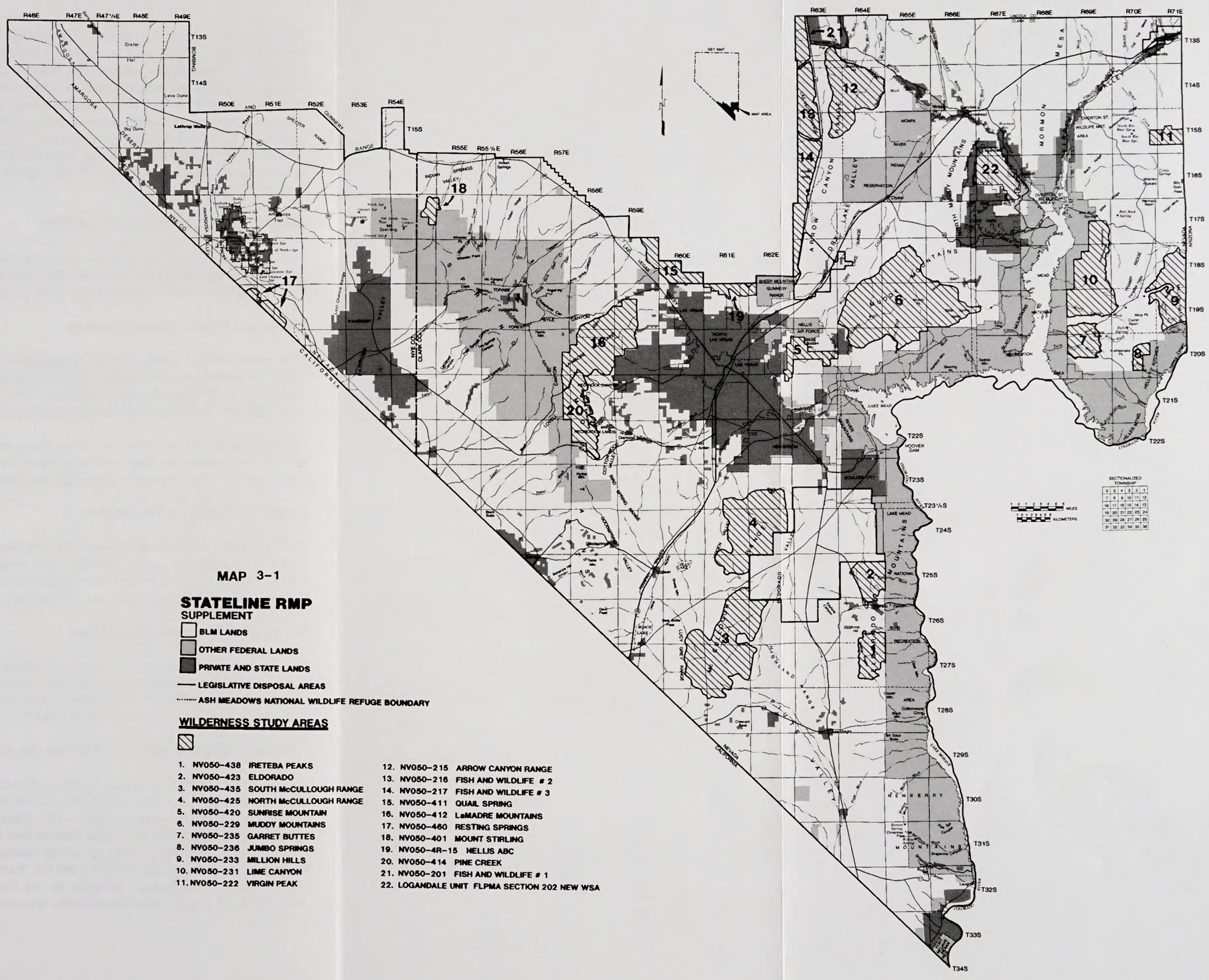
Nevada Power Company, in cooperation with Los Angeles Department of Water and Power, has completed an initial analysis of the Marketplace-Allen 500 Kv Transmission (MAT) project. This project would consist of two 500 Kv transmission circuits from the Harry Allen substation near Dry Lake to a new substation called Marketplace, near the Eldorado/McCullough substation south of Boulder City. The Marketplace substation would be interconnected to the proposed Mead-Phoenix and Mead-Adelanto 500 Kv projects and possibly to the existing McCullough substation. The Harry Allen 500 Kv substation would be interconnected with the proposed Southwest Intertie Project and Utah/Nevada 500 Kv (second IPP line). The White Pine Power Project (two 500 Kv lines) could also participate in the project, as well as other interested companies. This interconnection would replace lines through the area, with two larger (3,500 megawatt each) transmission lines.

WILDERNESS STUDY AREAS

Background

In compliance with the *Federal Land Policy and Management Act*, the Bureau of Land Management has evaluated lands within SRA for the presence of wilderness characteristics (see Map 3-1). Recommendations as to the suitability of those lands for inclusion in the National Wilderness Preservation System were forwarded in a report to the President in 1991, and subsequently, to Congress in 1992. Lands identified through the inventory process as Wilderness Study Areas (WSAs) have been managed, and continue to be managed, according to the *Interim Management Policy and Guidelines for Lands Under Wilderness Review* (IMP), BLM Manual H-8550-1.

Management according to these guidelines requires non-degradation of wilderness values and, thus, imposes constraints on the types of activities which can occur in WSAs under IMP. Although there is no specific timeline under which Congress must act on the wilderness recommendations, it is conceivable that designations could be forthcoming during the life of the Approved RMP. Future management of WSAs released from further consideration as wilderness are formulated in Alternative E. For a more complete discussion of the wilderness values of ea, the reader is referred to the *Clark County Final Wilderness Recommendations/Environmental Impact Statement* (USDI, BLM 1987) and the *Nevada Contiguous Lands/Final Environmental Impact Statement* (USDI, BLM 1990).



MAP 3-1

STATELINE RMP
SUPPLEMENT

- BLM LANDS
- OTHER FEDERAL LANDS
- PRIVATE AND STATE LANDS
- LEGISLATIVE DISPOSAL AREAS
- ASH MEADOWS NATIONAL WILDLIFE REFUGE BOUNDARY

WILDERNESS STUDY AREAS

1. NV050-438 IRETEBA PEAKS
2. NV050-423 ELDORADO
3. NV050-435 SOUTH McCULLOUGH RANGE
4. NV050-425 NORTH McCULLOUGH RANGE
5. NV050-420 SUNRISE MOUNTAIN
6. NV050-229 MUDDY MOUNTAINS
7. NV050-235 GARRET BUTTES
8. NV050-236 JUMBO SPRINGS
9. NV050-233 MILLION HILLS
10. NV050-231 LIME CANYON
11. NV050-222 VIRGIN PEAK
12. NV050-215 ARROW CANYON RANGE
13. NV050-216 FISH AND WILDLIFE # 2
14. NV050-217 FISH AND WILDLIFE # 3
15. NV050-411 QUAIL SPRING
16. NV050-412 LaMADRE MOUNTAINS
17. NV050-460 RESTING SPRINGS
18. NV050-401 MOUNT STIRLING
19. NV050-4R-15 NELLIS ABC
20. NV050-414 PINE CREEK
21. NV050-201 FISH AND WILDLIFE # 1
22. LOGANDALE UNIT FLPMA SECTION 202 NEW WSA

The energy and mineral potential of each WSA was derived from several sources. A *Geology, Energy, and Minerals Report* (GEM) was prepared by the Nevada Bureau of Mines for each WSA. These reports were a federally-contracted mineral survey to identify energy and mineral resources, which incorporated literature search with field verification and extensive sampling. Evaluation of the geologic setting and past and present mining activities also contributed to the mineral potential evaluation process. The energy and mineral potential of those portions each WSA recommended suitable for wilderness designation was evaluated by the U.S. Geological Survey (USGS), in cooperation with the U.S. Bureau of Mines. The results of their literature reviews, field sampling, and verification were published in a series of USGS *Bulletins* and *Open File Reports*. These reports are on file at the Bureau of Land Management's Las Vegas District Office.

ARROW CANYON WSA-32,853 ACRES

Arrow Canyon Range WSA is the northern extremity of the narrow, north-south trending Arrow Canyon Range. The 32,853 WSA is located 35 miles north of Las Vegas, Nevada and is approximately 12 miles long and 6 miles wide. None of the WSA is recommended for wilderness designation.

Energy and Mineral Resource Values

The Arrow Canyon Range shows no evidence indicating metallic mineral favorability. It has moderate to high favorability for nonmetallics, including silica, montmorillonite, gypsum, diatomite, limestone, dolomite, and alluvium. The eastern portion of the WSA has been identified by the U.S. Geological Survey (1979) as moderately favorable for potential geothermal resources.

The favorability for oil and gas resources is moderate because this area is part of the Overthrust Belt. Although no wells have been drilled in the study area, several that have been drilled to the south have been unsuccessful. Development of energy resources is not expected because of a history of nonproduction.

ELDORADO WSA-12,290 ACRES

Eldorado WSA (NV-050-423) lies in the southeastern portion of Clark County, Nevada, approximately one hour's drive from Las Vegas, Nevada. The study area contains 12,290 acres of public land and surrounds a private inholding of 87 acres in a roughly rectangular configuration, 5 miles long and 4 miles wide. None of the area was recommended for wilderness designation.

Energy and Mineral Resource Values

Based upon available data, the entire El Dorado WSA is classified as having low favorability for metallic and non-metallic minerals and moderate favorability for the occurrence of uranium (GEM, 1083). There are no known deposits of these resources in the study area. The entire WSA has a low favorability for the occurrence of sand and gravel (GEM, 1983). No material sites occur within the study area at present.

FISH AND WILDLIFE NO. 1, 2, 3 WSAs- 50,334 ACRES

Fish and Wildlife Nos. 1, 2 and 3 WSAs (NV-050-201, 216, and 217) are located in northern Clark and southern Lincoln Counties, approximately 35 miles north of Las Vegas, Nevada. The WSAs are a long, narrow configuration running north-south, approximately 45 miles long and about three miles wide at their broadest point. The study area is divided into three individual WSAs by two heavily traveled roads. For the purpose of this report, they are being considered as one unit. Fish and Wildlife No. 1 contains 11,090 acres, No. 2 contains 17,242 acres and No. 3 contains 22,002 acres, totalling 50,334 acres of public land. The WSAs are bounded on the west by the Desert National Wildlife Range and U.S. Highway 93 on the east. None of any of these areas were recommended for wilderness designation.

Energy and Mineral Resource Values

Fish and Wildlife Nos. 1 and 2 have moderate nonmetallic mineral potential through the entire WSAs for sand and gravel. The remainder of this area has low potential for nonmetallic minerals. Favorable locations of sand and gravel closer to the Las Vegas market has not created sufficient demand, for materials within the WSAs, to make these deposits of economic for commercial exploitation. All three WSAs have low potential for metallic minerals. All of Fish and Wildlife Nos. 1 and 2 have moderate potential for oil and gas.

GARRETT BUTTES WSA- 11,835 ACRES

The Garrett Buttes WSA (NV-050-235) is located in eastern Clark County, approximately 45 miles due east of Las Vegas, Nevada. The study area contains approximately 11,835 acres of public land. The boundary begins at the intersection of the Catclaw Road and the Scalon Ferry Road. It proceeds to the west along the Catclaw Road to the boundary of the Lake Mead National Recreation Area and heads south along this boundary for almost four miles. It then meets land reserved by the Bureau of Reclamation and follows the northern edge of this land in a southeasterly direction until it meets the Lakeside Mine Road. The boundary then follows this road easterly to the Scalon Ferry Road and then to the north until it meets the Catclaw Road, the starting point. The WSA is nearly square, with approximately 5 miles to a side. None of this area was recommended for wilderness designation.

Energy and Mineral Resource Values

Approximately 55 percent of the WSA (6,509 acres) has moderate potential for nonmetallic minerals (sand and gravel). The entire study area has low potential for metallic minerals and energy resources. There is no known indication of mineralization within the WSA. Exploration of and development for potential minerals is not expected to occur within the WSA due to lack of interest, absence of mining claims and prospecting activity and poor marketable location.

The WSA is rated as having low potential for energy resources. Neither exploration nor development of potential energy resources is projected to occur as the rock strata of the WSA are not suitable reservoirs for hydrocarbon accumulation.

IRETEBA PEAKS WSA- 14,994 ACRES

The Ireteba Peaks WSA, NV-050-438, is located south of the old mining town of Nelson in Clark County, Nevada, approximately an hour's drive south of Las Vegas, Nevada. The study area contains approximately 14,994 acres of public land in a rectangular configuration nearly 7.5 miles long and 3.5 miles wide. None of this area was recommended for wilderness designation.

Energy and Mineral Resource Values

Approximately 6 percent (900 acres) of the WSA is considered to have moderate favorability for the occurrence of metallic minerals; the remaining portion is considered to have low favorability. Ireteba Peaks WSA is classified as having low favorability for non-metallic minerals and moderate favorability for the occurrence of uranium. There are no known deposits of these resources in the study area. The entire WSA has a low favorability for the occurrence of sand and gravel (GEM, 1983).

JUMBO SPRINGS WSA - 3,466 acres

Jumbo Springs WSA (NV-050-236) is located in eastern Clark County, near the Lake Mead National Recreation Area (NRA), approximately 50 miles east of Las Vegas, Nevada and encompasses approximately

3,466 acres of public lands. The WSA boundary is defined by physical features and common boundaries with the Lake Mead National Recreation Area to the east and Bureau of Reclamation withdrawn lands to the south. The western and northern boundary is defined by a progression of peak to peak lines and ridgelines. Section lines common with the Lake Mead National Recreation Area define the east boundary. A section line common with Bureau of Reclamation withdrawn land, immediately south of the WSA, is the southern boundary. Jumbo Springs WSA is approximately 3.5 miles long in a north-south direction and 1.5 miles in an east-west direction. None of this area was recommended for wilderness designation.

Energy and Mineral Resource Values

Based upon available information, the study area is rated as having moderate potential for the occurrence of metallic minerals (titanium) in 25 percent of the area (866 acres). The remainder of the WSA is rated as low for both metallic and nonmetallic minerals. Exploration for, or development of, potential minerals is not expected to occur due to lack of interest and poor marketable location. The WSA is considered to have low favorability for the occurrences of energy resources. Exploration for or development of potential energy resources is not projected to occur as the rock structure of the WSA is not suitable for the accumulation of hydrocarbons. There is no known mineralization within the WSA.

LA MADRE MOUNTAIN WSA- 61,630 ACRES

The La Madre Mountain WSA (NV-050-412) encompasses approximately 61,630 acres of public land on the east side of the Spring Mountains, Clark County, Nevada, approximately 12 miles west of Las Vegas (Table 1). The WSA is generally rectangular in shape, ranging from 2-8 miles north-south to approximately 17 miles in the east-west dimension. The Pine Creek WSA (NV-050-414) is immediately adjacent to the southern border of the WSA, separated only by the Red Rock Summit road, an improved dirt road in the bottom of the canyon between the two WSAs. A large portion of the south central portion of the WSA is contained within the Red Rock National Conservation Area.

Due to a transfer of land management responsibilities to the U.S. Forest Service of approximately 20,000 acres within the WSA, the BLM currently manages just over 41,000 acres within this WSA. Of this, approximately 23,000 acres has been recommended for wilderness designation. (Of that land transferred to the Forest Service, approximately 19,000 acres has been recommended for wilderness designation.)

Energy and Mineral Resource Values

Between 1985-87, the U.S Geological Survey and Bureau of Mines surveyed 34,010 acres of the La Madre Mountain WSA recommended for wilderness and prepared a mineral assessment. According to their report no mineral or energy resources were identified within the study area.

U.S. Geological Survey *Bulletin* 1730-A, the assessment of the mineral potential for that portion of the La Madre Mountain WSA recommended for wilderness, noted that geochemical sampling of stream sediments within the WSA delineated a zone of slight silver, lead and zinc anomalies. However, the report concluded that the entire area recommended for wilderness designation had low mineral resource potential for silver, lead, and zinc. No known deposits of nonmetallic minerals occur within the recommended wilderness area, and a discovery of significant near-surface deposits would be unlikely. Sand and gravel and limestone suitable for construction materials are abundant within the area recommended for wilderness designation. Since similar materials are available closer to major markets, occurrences in the area recommended for wilderness were not classified as resources. The potential for petroleum resources is rated as low.

LIME CANYON WSA - 34,680 ACRES

Lime Canyon WSA (NV-050-231) is located in the Overton Arm region, near Lake Mead, northwest of Gold Butte in eastern Clark County, Nevada. The study area includes 34,680 acres of public land and surrounds 838 acres of patented mining claims. The WSA has a generally elongated shape that is north-south oriented. It is about 13 miles long and varies between 3 and 7 miles wide. Lake Mead National Recreation Area borders the WSA on the west and the boundary is the western boundary of the WSA. The recommendation was to designate 13,895 acres as wilderness.

Energy and Mineral Resource Values

Energy and mineral potential of the WSA has been rated by using the following information: (1) a mineral report submitted by the U.S. Bureau of Mines (MLA 34-88) which studied 9,599 acres of the WSA), (2) a literature search, (3) evaluation of the mineral setting, (4) field verification by BLM and BoM geologists (such verification included chemical analysis of rock samples.), (5) the GEM Report of 1983 (GRA No. NV-35), and (6) past and/or present mining activities.

The entire WSA has moderate potential for nonmetallic minerals (gypsum). Although there are deposits of limestone and dolomite, they have low development potential. Similar deposits closer to a market make these deposits of lower value. The Lime Canyon WSA is considered to have low favorability for the occurrence of energy resources.

MILLION HILLS WSA- 21,296 ACRES

The Million Hills WSA (NV-050-233) is located in northeastern Clark County, approximately 45 miles east of Las Vegas, Nevada, across Lake Mead in an area known as Gold Butte. Although relatively close to Las Vegas, Million Hills WSA is more than 2 hours driving time away. The study area contains 21,296 acres of public land. None of the lands within this area have been recommended for wilderness designation.

Energy and Mineral Resource Values

Energy and mineral potential of the WSA has been rated using the following information: (1) a mineral report submitted by the U.S. Bureau of Mines (MLA 34-88), (2) a literature search, (3) evaluation of the mineral setting, (4) field verification by BLM and Bureau of Mines geologists (such verification included chemical analysis of rock samples), (5) the GEM Report of 1983 (GRA No. NV-35), and (6) past and/or present mining activities.

The entire WSA has moderate nonmetallic mineral potential (dolomite and limestone) and twenty per cent of the WSA has moderate metallic mineral potential (base metals). Field review of the area by the U.S. Bureau of Mines identified the presence of cobalt (strategic mineral) associated with manganese deposits. The presence of cobalt is of special significance as the grade is comparable to that found in the Blackbird Mining district in Idaho, the nations only primary cobalt deposit. Million Hills WSA is considered to have low favorability for the occurrence of energy resources.

MT. STIRLING WSA-69,650 ACRES

Mt. Stirling WSA (NV-050-401) is located 45 miles west of Las Vegas, Nevada, in Clark and Nye Counties. Encompassing the northern most portion of the Spring Mountain Range, the WSA contains 69,650 acres of Forest Service and BLM lands. Approximately 750 acres managed by the BLM within this WSA have been recommended for wilderness designation of the total 5,600 still managed by BLM within the study area.

The *National Forest and Public Lands of Nevada Enhancement Act* (Public Law 100-550) adjusted the administrative boundaries for the Toiyabe National Forest, placing approximately 91 percent of the Mount Stirling WSA within the new Forest boundary. Approximately 50,000 acres of the total 64,000 within the WSA, and managed by the Forest Service, is now part of the Spring Mountain National Recreation Area and withdrawn from mineral entry.

Energy and Mineral Resource Values

Between 1983-85, U.S. Geological Survey and Nevada Bureau of Mines prepared a mineral assessment for the 50,682 acres of the Mt. Stirling WSA recommended for wilderness. According to the report (*Bulletin 1730-B)*, a high resource potential for gold was assigned to the Grapevine fault system, running north-south along the WSA's western border. High resource potential for gold was also assigned along the northern border at Gold Spring. The area south of Big Timber Spring has an unknown mineral resource potential for gold along a poorly exposed normal fault system.

A portion of the southeastern edge of the area is classified as highly favorable for lead, zinc, and silver mineralization in thrust fault zones. Extensive exposures of limestone and dolomite in the area result in a classification of moderate favorability for non-metallics.

MUDDY MOUNTAINS WSA - 96,170 ACRES

Muddy Mountains WSA (NV-050-229) is located in Clark County, approximately 20 miles northeast of Las Vegas, Nevada. The study area includes 96,170 acres of public land. It is irregular in shape, approximately 14 miles across in a north-south direction, at its widest point, and approximately 18 miles from east to west. A total of 36,850 acres were recommended for wilderness designation.

Energy and Mineral Resource Values

Energy and mineral potential of the WSA has been rated by using the following information: (1) review of existing documentation and mine production records, (2) reconnaissance sampling and analysis of selected areas within the WSA, (3) and the geologic setting of the area. U.S. Geological Survey and U.S. Bureau of Mines cooperated in preparing a *Mineral Resource Potential of the Muddy Mountains Wilderness Study Area, Clark County, Nevada* (1982). The report identified the Muddy Mountains WSA as having high potential for mineral deposits of calcium borates and lithium. Known and potential mineral deposits are concentrated in the east-central and south-central parts of the study area. Zeolites (in particular clinoptilolite) are present in some tuff beds throughout much of the study area, with the majority of the deposits external to the WSA in the northeast, suggesting a moderate to high mineral potential. Stream-sediment sampling indicates that the Muddy Mountains area has little potential for mineral deposits of metals other (than lithium). Building stone and silica sand have moderate to low potential.

Oil and gas potential within the study area is low. Five exploratory oil and gas test holes have been drilled in the vicinity of the WSA, one within the cherry-stem road in the Buffington Pockets area in the north end of the WSA, but none encountered producible amounts of petroleum. The local Tertiary stratigraphic section within the WSA is not considered to have good potential for oil exploration (USGS, 1982). These rocks are not part of the overthrust belt, were deposited in closed evaporitic basins, and contain little or no organic matter. The high degree of structural complexity of the study area suggests there are probably no buried overthrust-related traps that are undisturbed by Tertiary structures. U.S. Geological Survey determined that the petroleum potential for the study area is regarded as poor, chiefly because of the lack of known potential source rocks.

NELLIS ABC WSA - 5,718 ACRES

The Nellis ABC WSA (NV-050-04R-15) is located at the northern end of Las Vegas Valley. The study area is divided into three small sub-areas separated by roads. For the purpose of this report, all of the sections will be considered as one. Sub-area A encompasses 1,971 acres, B has 2,713 and C has 1,024 acres for a combined total of 5,718 acres. The WSA was originally inventoried as part of a 13,400 acre parcel. The study area comprises the natural portion of the original parcel which was contiguous to the Fish and Wildlife Service Desert National Game Range area recommended for wilderness. None of this area was recommended suitable for wilderness designation.

Energy and Mineral Resource Values

The entire WSA (5,718 acres) was rated as having moderate potential for nonmetallic minerals (sand and gravel) and low potential for oil and gas. Moderate potential for geothermal resources exists within the WSA.

NORTH MCCULLOUGH WSA-47,166 ACRES

North McCullough WSA (NV-050-425) is located in the south central portion of Clark county, Nevada, less than 15 miles south of Las Vegas. The entire WSA is comprised of public land with no private inholdings and is roughly rectangular in shape, approximately 9-10 miles on the north-south axis and 7-8 miles on the east-west axis. The eastern boundary located at the base of the escarpment, slightly west of a large utility corridor. The southeastern boundary is the legal subdivision of lands identified for State selection in the *Eldorado Valley Lands Act*. None of this area was recommended for wilderness designation.

Energy and Mineral Resource Values

Energy and mineral potential of the WSA has been rated by using the following pieces of information: (1) a literature search, (2) the 1982 *Barringer Report* (a federally contracted mineral survey of the WSAs to identify mineral resources and incorporating extensive sampling) (3) the *Geology, Energy, and Minerals Report* (1983), (4) evaluation of the geologic setting and consultation with energy and mining companies as well as local prospector, and (5) minor field verification by BLM geologists and (6) past and present mining activities.

The WSA was evaluated as having minimal potential for mineral development, but edges of the WSA evidenced moderate to high potential for nonmetallic minerals (sand and gravel). Energy resources were of low potential.

QUAIL SPRINGS WSA- 12,145 ACRES

The Quail Springs WSA (NV-050-411) is located in northwestern Clark County, approximately 10 miles northwest of Las Vegas, Nevada. The study area includes 12,145 acres of public land. The boundary is a combination of roads, a shared boundary with the Desert National Wildlife Range, corporate boundary for the City of Las Vegas, a common border with the Moapa Indian Reservation, and an abandoned railroad grade. None of the lands within this area were recommended for wilderness designation.

Energy and Mineral Resource Values

All of the WSA was rated as having moderate nonmetallic mineral potential for sand and gravel (GEM 1983). Geologic formations are not considered to be favorable for the location of metallic minerals or energy resources.

RESTING SPRINGS WSA - 3,850 ACRES

Resting Spring Range WSA, NV-050-460, is approximately 15 miles west of Pahrump and nearly 60 miles west of Las Vegas, along the California-Nevada border, in Nye County, Nevada. Access is via Ash Meadows Road several miles to the east. Except for the western boundary, which is the Nevada-California border, the boundaries of the WSA are poorly defined. Boundaries meander along the base of the foothills of the Resting Spring Range, set back from the effects of the Ash Meadows and Stewart Valley Roads. The 3,850 acre WSA is divided into two unequal parts by a maintained dirt road which branches off the Ash Meadows Road. The northern portion is 1,050 acres and the southern portion is 2,800 acres.

Resting Springs WSA is contiguous to the California Desert Conservation Area's (CDCA) Resting Spring Range WSA No. 145, which covers 89,772 acres in California. During the 1980 Wilderness Inventory, it was determined that the Nevada WSA did not meet wilderness criteria for size, solitude and primitive recreation, except when considered in conjunction with the California WSA. California BLM has recommended that the CDCA Resting Springs WSA be designated nonwilderness. None of the lands in this area have been recommended for wilderness designation.

Energy and Mineral Resource Values

Resting Spring WSA is largely composed of Precambrian and Cambrian marine sediments which have been displaced by normal faults, usually less than 1 mile in length. Quaternary alluvial fan deposits cover much of the lower slopes. Miocene tufaceous lake beds occur north of the WSA and in small areas inside the north boundary.

The entire WSA is classified as having a low favorability for metallic and most nonmetallic mineral resources due to the geology of the area. The U.S. Geological Survey *Open File Report* 90-638 indicated that the WSA has high mineral potential for clay and moderate potential for geothermal resources. The WSA has no favorability for oil and gas, or uranium, based on a lack of source rocks.

Oil and gas potential is estimated to be high due to the area's location within the Overthrust Belt, Devonian reservoir potential is moderate. USGS *Open File Report* 90-638 identified seven zones, ranging from low to high mineral resource potential for gold, copper, lead, zinc, and manganese.

SOUTH MCCULLOUGH MOUNTAINS WSA-56,623 ACRES

The South McCullough Mountains WSA (NV-050-435) is located approximately 35 miles south of Las Vegas, just north of the California-Nevada border, and 13 miles west of Searchlight, Nevada. Encompassing the southern portion of the McCullough Mountain Range, the WSA is approximately 15 miles long and 6-9 miles wide; 20,000 acres of this WSA were recommended for wilderness designation.

Energy and Mineral Resource Values

A report on the mineral potential of the WSA was published in the U.S. Geological Survey *Bulletin* 1730-C (1989). According to that report, the WSA contains no identified mineral resources and has no areas of high mineral resource potential. Five areas that make up 20 percent of the study area have a moderate potential either for undiscovered silver, gold, lead, copper, and zinc resources in small vein deposits, for lanthanum and other rare-earth elements, uranium, thorium, and niobium in medium-size carbonatite bodies and dikes, for tungsten and copper in small to medium size vein deposits, or for silver and gold in small veining or breccia-pipe deposits. The entire study area has no resource potential for oil and gas or coal, as well as a low resource potential for the following nonmetallic commodities: dimension stone; sand and gravel; pegmatite minerals such as feldspar and mica; and geothermal resources.

SUNRISE MOUNTAIN ISA-10,240 ACRES

The Sunrise Mountain Instant Study Area (NV-050-420) is located at the eastern edge of Las Vegas and was previously designated as Sunrise Mountain Natural Area, in 1970. The area was identified as having unique geologic, biologic, and aesthetic values. Section 603 (a) of FLPMA directed that all areas designated as "natural or primitive areas" prior to November 1, 1975 be studied for their wilderness values. A total of 29,475 acres were studied, and the area determined to lack wilderness characteristics. BLM recommended that the study area be dropped from the wilderness review process. The original 10,240 acres of the Natural Area continues to be managed as a WSA, until the nonwilderness recommendation is adopted by congressional determination.

Energy and Mineral Resource Values

No specific mineral study was done for the Sunrise Mountain ISA due to the early recommendation that the area be dropped from further wilderness review.

DESERT TORTOISE MANAGEMENT IN CONFORMANCE WITH THE *RECOVERY PLAN*

Background

Approximately 3 million acres of the Stateline Resource Area is considered desert tortoise habitat. Under its emergency authority, the U.S. Fish and Wildlife Service (USFWS) placed the desert tortoise on the Endangered Species List on August 4, 1989. On April 2, 1990, USFWS issued a final rule listing the desert tortoise as a threatened species. Prior to the listing of the desert tortoise as a threatened species, BLM had been collecting data on tortoise populations since 1979. The following summarizes the methodology of and data recovered by the BLM inventories.

One method of surveying desert tortoise habitat is to walk standard tortoise transects. Standard tortoise transects consist of a 1.5 mile triangular transect (1/2 mile per side). All sign of tortoise within 5 meters of either side of the transect is counted. Tortoise sign includes tortoises, alive or dead, burrows, scat, egg shells, tracks and courtship rings. The amount of sign per transect can be correlated with tortoise abundance by conducting transects on areas with known population levels. The relative abundance of tortoises in other areas can then be estimated by conducting tortoise transects.

Since 1979, approximately 1,300 standard tortoise transects have been conducted in the Las Vegas District. The transect technique generally indicates the relative abundance of larger tortoises and their sign. Transects tend to underestimate tortoise density for a specific location, although they clearly can differentiate good habitat from poor habitat (Turner et al 1992).

A second method of estimating tortoise densities and population trend is to conduct mark-recapture studies. In the Las Vegas District, a total of nine permanent square mile study plots were established between 1979 and 1989 (seven in the planning unit, two in Caliente Resource Area). These plots are generally read every four years. Plot surveys consists of a 30 field-day capture period followed by a 30 field-day recapture period, for a total effort of 60 field-days per study plot. In the future, the BLM plans to establish at least eight additional study plots, as required by the Terms and Conditions of the Biological Opinion for Livestock Grazing in the Las Vegas District. The *Draft Recovery Plan for the Desert Tortoise (Mojave Population)* (USFWS, 1993) recommends the removal method of population estimation (Zippin 1956, 1958) for assessing density, using smaller sized plots (1 sq. km.), for shorter periods of time (7 days). These techniques will be implemented and tested in future studies.

Between 1990 and 1992, five permanent study plots were resampled. Data was analyzed using the Bailey binomial method outlined by Caughely (1977). Of the five plots resampled between 1990 and 1992, the data indicate that two populations of adult tortoises have remained relatively stable or increased slightly (Sheep Mountain and Coyote Springs), two have declined slightly (Christmas Tree Pass and Trout Canyon), and one has dramatically declined (Gold Butte).

The tortoise population of the Piute Valley study plot was surveyed four times between 1979 and 1989. The data indicate that a significant decrease in the number of adult tortoises occurred between 1979 and 1983, likely due to drought conditions. Between 1983 and 1987, numbers of adults remained constant, but the number of tortoises with less than 180 mm mid-carapace length (MCL) declined by approximately 50 percent. The total estimated number of tortoises on the plot decreased between 1987 and 1989, although the actual numbers of subadult and adult tortoises were approximately the same. By 1989, it appeared that the density of tortoises on the Piute Valley Study plot had begun to stabilize somewhat, although at a level of approximately one half the 1979 density.

Since 1990, signs of Upper Respiratory Tract Disease (URTD) have been documented on three of the five permanent study plots (Coyote Springs, Christmas Tree Pass, and Gold Butte) while no signs have been observed on the Sheep Mountain or Trout Canyon plots. It should be noted that none of the animals observed showed chronic signs of URTD and none were tested for the presence of *Pasteurella* or *Mycoplasma*.

Osteoporosis has been described as the thinning of bone and is exemplified by the concavity of tortoise scutes. Sunken scutes in young tortoises is generally considered to be a sign of malnutrition. This condition has been documented on all permanent study plots sampled between 1990 and 1992. The percentage of tortoises encountered exhibiting sunken scutes ranged from 12 to 50 percent. Shell disease has also been documented on all permanent study plots sampled between 1990 and 1992. The percentage of captured tortoises believed to have shell disease ranged from 7 to 52 percent.

In 1989, BLM's Management Oversight Group adopted a priority for research activities addressing desert tortoise conservation. A high priority was to initiate research on the effects of cattle grazing on the desert tortoise. Clark County, Nevada acquired grazing privileges on five allotments to satisfy the requirements of their habitat conservation plan (HCP). These grazing privileges were to be retained in "non-use" until a definitive study demonstrated that livestock grazing is consistent with recovery of the desert tortoise. In the spring of 1993, the BLM and the U.S. Fish and Wildlife Service's National Ecology Research Center (NERC) began to cooperatively fund and staff a two-phase grazing study.

Phase I involves an examination of historic grazing use to determine its impacts to the desert tortoise and tortoise habitat. A basic assumption for this study is that cattle distribution in arid regions is largely controlled by water, and that any impacts to tortoises or their habitat should decrease as distance from water increases. Major parameters to be examined include variations in tortoise density, incremental growth of tortoises at different distances from water, and measurements of plant species composition, ground cover, biomass production, and vegetative structure. As many as 12 water sources will be examined during Phase I between 1993 and 1994. Thus far, tortoise and vegetative data have been collected from three waters. This data will be analyzed this year and a determination made on whether to proceed to Phase II in FY 1994 or to continue with Phase I for another year.

Phase II consists of a complex experimental design where various levels of grazing use (from no grazing to heavy grazing) will be examined under controlled conditions. Effects of cattle grazing on soils and vegetation will be examined, along with the effects on tortoise biology (i.e. tortoise health, vigor, reproduction, and mortality). The grazing prescription will be strictly controlled and closely monitored. Phase II will begin at the completion of Phase I, probably in fiscal year 1995 or 1996 and will last 5 to 7 years.

Existing Tortoise Populations and Proposed ACECs/DWMAs

One purpose of this Supplement is to develop an alternative which will implement the *Recovery Plan for the Desert Tortoise (Mojave Population)* (USFWS, 1993). As outlined in the *Draft Recovery Plan*, desert wildlife management areas (DWMAs) were proposed. Since there is no official BLM designation for DWMAs, these areas would be designated as Areas of Critical Environmental Concern (ACECs).

In 1988, BLM developed the *Desert Tortoise Habitat Management on Public Lands: A Rangewide Plan*. This plan categorized tortoise habitat into category I, II and III habitat areas. This categorization of habitat was a method of identifying which areas were most important for desert tortoise and which areas had the most potential for long-term management of desert tortoise populations. In the *Draft RMP/EIS*, most of the category I and II tortoise habitat areas were proposed as ACECs. Since the *Rangewide Plan* was published, the desert tortoise has been listed as a threatened species; a *Draft Recovery Plan* has been developed; and critical habitat has been proposed (*Federal Register* Vol. 58, No. 166, Monday, August 30, 1993).

After the listing of the desert tortoise, Clark County prepared a *Short-Term Habitat Conservation Plan* for desert tortoise, in conjunction with other local governments. The development of this plan resulted in the Piute Valley/Eldorado Tortoise Management Area in the southern part of Clark County.

The ACECs/DWMAs proposed in Alternative E of this Supplement were developed to closely coincide with proposed critical habitat, the existing Tortoise Management Area identified in Clark County's *Habitat Conservation Plan* and the recovery areas outlined in the *Recovery Plan*. Tortoise habitat categories, as developed in the *Rangewide Plan*, will no longer be applicable, once the final RMP is approved. Tortoise habitat categories will be replaced with ACECs/DWMAs. Three ACECs proposed in the Draft RMP have not been included in this supplement (Indian Springs ACEC, Pahrump Valley ACEC and California Wash ACEC). These ACECs were identified primarily for desert tortoise. The USFWS did not include these areas in the proposed critical habitat. Two of the proposed ACECs were outside of recovery areas proposed in the *Recovery Plan*. For these reasons, these three ACECs were not included in the Supplemental Draft RMP.

Densities of tortoises within the proposed ACECs/DWMAs were estimated, using strip-transect data and study plot data. The following assumptions were made:

1. Estimated densities were based upon methods described by Karl (1981) for Lincoln and Nye Counties, and selected sites in Southern Nevada (Schneider and Turner, 1982). The strip transect methods cited above use the total adjusted sign (TAS) values shown in Table 3-3.

2. A high and low density estimate was calculated based upon strip-transect data.

3. For analytic purposes, a range of 140 - 160 tortoises per square mile was assigned to transects with total adjusted sign of greater than or equal to 12.

Tables 3-4 and 3-5 display proposed ACECs/DWMAs and estimated tortoise densities within those areas.

Table 3-3. Estimated densities of tortoise, based on total adjusted sign.

Total Adjusted Sign	Estimated Density/ Square mile
0	1-10
1-3	10-45
4-7	45-90
8-11	90-140
12	>140

(methodology: Karl (1981), Schneider and Turner (1982)

Table 3-4. Proposed ACEC/DWMAs with acreage and estimated tortoise densities.

ACEC/DWMA NAME	ACRES	EST. TORTOISE NUMBERS PER SQ. MILE	EST. TORTOISE DENSITIES PER ACEC/DWMA
Gold Butte	314,225	10-20	4,910-9,820
Mormon Mesa	136,150	25-45	5,318-9,572
Coyote Spr./ Arrow Can.	77,500	25-75	3,025-9,075
Total- Northern ACECs/ DWMAs	**527,875**		**13,253-28,467**
Piute/ Eldorado	270,063	40-63/ 6-17	11,642-19,514
Total- Southern ACECs/ DWMAs	**270,063**		**11,642-19,514**
Total- ACECs/ DWMAs	**797,938**		**24,895-47,981**

Table 3-5. Estimated tortoise numbers in proposed ACECs/DWMAs and adjacent habitats.

AREA	SQ. MILES OF HABITAT	RELATIVE DENSITY	ESTIMATED NUMBER OF TORTOISES	MEDIAN NUMBER OF TORTOISES
Mormon Mesa Clark Co. BLM	213	25-45	5,325-9,585	7,455
Mormon Mesa Lincoln Co. BLM	168	10-20	1,680-3,360	2,520
Total Mormon Mesa	**381**		**7,005-12,945**	**9,975**
Coyote Spr. Arrow Canyon Clark Co. BLM	121	25-75	3,025-9,075	6,050
Coyote Spr. Arrow Canyon Lincoln Co. BLM	107	25-75	2,675-8,025	5,350
Coyote Spr. Arrow Canyon Aerojet	63	25-75	1,575-4,725	3,150
Coyote Spr. Arrow Canyon USFWS	115	10-45	1,150-5,175	3,163
Total Coyote Spr. Arrow Canyon	**406**		**8,425-27,000**	**17,713**
Gold Butte NV BLM	490	10-20	4,900-9,800	7,350
Gold Butte AZ BLM	319	1-20	319-6,380	3,350

Table 3-5 (Concluded). Estimated tortoise numbers in proposed ACECs/DWMAs and adjacent habitats.

AREA	SQ. MILES OF HABITAT	RELATIVE DENSITY	ESTIMATED NUMBER OF TORTOISES	MEDIAN NUMBER OF TORTOISES
Gold Butte AZ BLM	144	20-50	2,880-7,200	5,040
Gold Butte NPS	130	10-20	1,300-2,600	1,950
Total Gold Butte	**1,083**		**9,399-25,980**	**17,690**
Piute Val. NV BLM	268	40-63	10,720-16,884	13,802
Eldorado Val. NV BLM	156	6-17	936-2,652	1,794
Lake Mead NRA	159	10-20	1,590-3,180	2,385
Piute Val. CA BLM	?	?	?	
Ivanpah Val. CA BLM	?	?	?	
Eldorado Lands Act	167	6-17	1,002-2,839	1,921
Total Eldorado Piute Valley	**750**		**14,248-25,555**	**19,902**
Total Northeastern Mojave Unit	**2,193**		**26,767-71,416**	**48,913**
Total Eastern Mojave Unit**	**427**		**12,310-20,064**	**16,187**
Total	**2,620**		**39,077-91,480**	**65,100**

** Does not include habitat in California; only habitat in Piute Valley and Lake Mead NRA in Nevada is displayed. Eldorado Valley is contained within Northeastern Recovery Unit.

CHAPTER 4

ENVIRONMENTAL CONSEQUENCES

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ENVIRONMENTAL CONSEQUENCES

INTRODUCTION

This chapter analyzes the anticipated physical, biological, social, and economic consequences of implementing Alternative E, as described in Chapter 2. Guidelines and assumptions for analysis are identified. The discussion of the environmental consequences is in proportion to the significance of the anticipated impacts. If a resource or resource use is not addressed, it was determined that impacts would not occur or would be insignificant. Mitigation measures designed to avoid or reduce the significance of impacts have been incorporated into the management directions contained in the alternative.

ANALYSIS GUIDELINES

The baseline for comparing impacts is the No Action Alternative, which represents a continuation of the existing management situation. Impacts expected to occur by the year 2014, are identified for Alternative E, when compared to this baseline. The analysis of environmental consequences includes identification and discussion of both long-term and short-term, direct and indirect, and beneficial and adverse impacts. Irreversible, irretrievable, and cumulative impacts are identified at the end of the discussion for each alternative.

ASSUMPTIONS FOR ANALYSIS

An interdisciplinary approach was used to analyze the environmental consequences. The following general assumptions underlie the analysis:

Funding and staffing will be adequate to fully implement all management actions associated with each alternative.

Any RMP recommendations requiring authorization beyond the level of the Area Manager, District Manager or State Director will be accepted and implemented. For example, RMP recommendations for establishing new withdrawals in excess of 5,000 acres will be favorably acted upon by the Secretary of the Interior and Congressional concurrence will be obtained.

The effective life of the RMP is anticipated to be 20 years.

Short-term impacts are those that would occur within 5 years of implementation of any given management action. Long-term impacts are those that would occur between 5 and 20 years, or longer, after implementation of an action.

Impacts are considered to be direct unless otherwise indicated.

Most of the public lands identified as available for disposal would not go into private ownership. Those lands encumbered by other federal actions, mining claims, or economic constraints would remain in federal ownership.

Any RMP decisions that would affect a wilderness study area and result in non-compliance with the *Interim Management Policy and Guidelines for Lands Under Wilderness Review* would not be implemented unless and until Congress releases that WSA from further consideration for designation as wilderness.

Site-specific reviews will be conducted for specific livestock range improvement projects; wild horse and burro habitat enhancement projects; wildlife habitat enhancement projects; recreation facility construction projects; OHV events; issuance of rights-of-way and other land use authorizations and leases; disposal of specific public lands; plans of operation for 43 CFR 3802 and 3809 actions; applications for permit to drill (APD); and mine plans for sand and gravel extraction. These reviews will generally result in the preparation of administrative determinations, categorical exclusions, environmental assessments, or environmental impact statements.

Acreage figures and other numbers used in this analysis are approximate projections for comparison and analytic purposes only - the reader should not infer that they reflect exact measurements or precise calculations.

The discussion of impacts is based on the best available data. Knowledge of the planning area and professional judgement, based on observation and analysis of conditions and responses in similar areas, have been used to infer environmental impacts where data is limited.

The definition of impacts to cultural resources has a conceptual range from maximum to minimum disturbance. The maximum concept states that the qualities that give a site its eligibility potential must be destroyed to constitute an impact. Even in such a case, adverse impacts can be mitigated through consultation under Section 106. For example, casual collection of a few artifacts on the surface within an aboriginally used shelter that possesses a meter of stratigraphic deposition would not affect the eligibility potential for yielding important data that can add to the knowledge of regional prehistory. If the shelter would be destroyed through permitting a federal action, then a data recovery plan would mitigate those adverse affects.

The minimal point of view states that any change to a cultural resource, no matter how seemingly small, as a consequence of human actions constitutes an affect. For instance, when an archeological property is discovered by people, a cycle of impacts is initiated. These impacts may simply consist of disturbing spiritual or cultural values considered by Native Americans or other interested parties as belonging to the objects, features, or the surrounding area. The impact may also include removing artifacts and in so doing dismembering the cultural property. Conducting a data recovery of the artifacts, charcoal samples, and biological materials at the shelter site proposed for destruction would not mitigate the adverse affects, but merely attempt to reduce the degree of impact. Section 106 consultation provides professional guidance in salvaging a sample of physical items, but does not erase the fact that the site has been destroyed.

The assessment of impacts for cultural resources in this plan assumes a minimal concept of disturbance. Once a site is changed by removal or disturbance as a consequence of the evaluation or disposal phase involved in processing a federal action, a cycle of impacts has begun. The only situation where impacts would be considered positive are those that provide direct benefits through preservation and stabilization. All other changes are considered to be negative affects or impacts. Significant impacts are those where an action or a group of similar actions resulting from an environmental policy, such as processing and approving all Plans of Operations within SRA for the life of the plan, affecting a relatively large number of eligible cultural resource properties. This assessment was determined through the professional judgement of the cultural resource manager.

ALTERNATIVE E

Impacts were analyzed for each of the following resources or management programs: air, soils, water, vegetation, riparian resources, visual resources, fish and wildlife habitat, forestry, livestock grazing management, wild horses and burros, cultural resources, lands, natural areas, recreation management, wild and scenic rivers, rights-of-way, wilderness, minerals, acquisitions, fire management, special management areas, and socio-economic values. Only those resource impacts determined to be significant are included in the following sections.

AIR RESOURCE MANAGEMENT

From Lands Management

Under Alternative E, 20,000 acres in the Las Vegas Valley would be disposed of to provide for the orderly expansion and development of the Las Vegas Valley and for public services. Such disposals could indirectly impact the air resource by encouraging growth within the Valley. Population growth could contribute to more numerous pollutant sources and increased discharge. Construction activities would generate airborne particulates. Carbon monoxide levels would rise, as a result of a greater number of vehicles. Although the disposal acreage figure is smaller than that identified under the No Action Alternative, increases in pollutant levels could be projected to be significant within the Las Vegas Valley Non-attainment Area, already in violation of Air Quality Standards for particulates and carbon monoxide.

From Recreation Management

Competitive OHV use could potentially produce significant amounts of particulate matter, particularly if events are conducted in areas of susceptible soils. Approximately 90,550 acres in SRA exhibit high erosion susceptibility. An estimated 1,306,628 acres of moderately susceptible soils occur within the planning area. Surface disturbance, both on existing roads/trails and off-road, in these areas would leave soils vulnerable to wind erosion and, consequently, windblown dust. Two SRMAs would be open to OHV competitive events. The creation of windblown dust would be of particular concern within the Las Vegas Valley Air Quality Non-attainment Area, where particulate matter already exceeds Air Quality Standards. Competitive events could be authorized on the Nevada 400 course, within the Nellis Dunes SRMA in the valley, and south of the valley (Jean Lake/Roach Lake). Given the proper meteorological conditions, these events could temporarily further degrade Las Vegas Valley's air quality. Compliance with the Clark County Health Districts permitting process would help to lessen the effects of this impact on the air resource.

From Minerals Management

Impacts to the air resource from mineral exploration and development would be anticipated to be of short and long-term duration. Fluid minerals activities could produce dust during road travel and gaseous pollutants, including carbon monoxide, hydrocarbons, nitrogen oxides, sulphur oxides, and hydrogen sulfide. Such activities are currently minimal in SRA and would not be expected to increase in scale.

Locatable mineral entry, mineral materials sales, and non-energy leasables activities could create significant airborne particulates, especially within the Las Vegas Valley Air Quality Non-attainment Area. Soils with critical Erosion Condition Class (96,994 acres) and stable to moderate Erosion Condition Classes with a high Erosion Susceptibility Rating (68,506 acres) would be particularly susceptible. Dust production resulting from mineral exploration would be minor and of short-term duration; significant and long term for

mining operations. Dust production could be lessened through the use of proper mitigation measures. Locatable mineral, mineral materials, and non-energy leasable mineral closures within the Las Vegas Valley would aid in lowering the potential for significant particulate sources within the area.

From Fire Management

Wildfire suppression efforts would benefit the air resource by significantly reducing particulate production, particularly within and upwind from the Las Vegas Valley Non-attainment Area. Following fire suppression, implementation of the Las Vegas District Normal Fire Rehabilitation Plan would lessen the period of reduced vegetative cover and soil disturbances which could increase wind erosion rates and amounts of windblown dust.

The use of prescribed burns as a vegetative manipulation tool could result in increase airborne particulate matter, in the form of smoke. Although these emissions could be significant, particularly if occurring within or upwind from the Las Vegas Valley Air Quality Non-Attainment Area, they would be short term in duration. Mitigation could be achieved for prescribed burns through compliance with the Clark County Health District permitting process.

From Special Management Areas

Alternative E would designate 23 ACECs (approximately 969,600 acres), within which competitive OHV use would not be allowed and mineral activities intensively managed. These restrictions would aid in reducing airborne particulate production from the public lands, particularly in those ACECs within and upwind from the Las Vegas Valley Air Quality Non-attainment Area.

SOIL RESOURCE MANAGEMENT

From Livestock Grazing Management

Approximately 11,800 Animal Unit Months (AUMs) of livestock use were permitted in 1992. An estimated 7865 were authorized in 1993, with subsequent anticipated reductions to 2,601 AUMs in the short term. Under Alternative E, 43 of the allotments would be closed to all livestock grazing. Soil resources would experience a significant positive impact from the preservation of vegetative cover.

Nine of the 11 allotments open to grazing are located wholly or in part within the Colorado River drainage system. Of these nine allotments, five contain a total of 21,710 acres of soils with a high erosion susceptibility rating and two have a total of 20,646 acres of soils that are in a critical erosion condition class. A total of 41,042 acres in four allotments are composed of saline soils. An estimated 283,000 tons per year of salt is currently contributed to the Colorado River from the Nevada portion of the drainage system. The contributions from SRA's portion of the drainage is not known at this time. However, under Alternative E, salt loading due to impacts from grazing would be expected to decrease significantly, due to closure of a majority of the allotments containing saline soils.

From Lands Management

Approximately 111,000 acres would be made available for disposal throughout the SRA to provide for community growth and public service needs; approximately 20,000 acres could reasonably be anticipated to be disposed of in the Las Vegas Valley. Such disposal would have indirect impacts on the soil resource by encouraging growth and development within the Valley. With growth, the acres of impermeable surface would increase, creating greater storm water runoff. Increased volume and velocity of floodwater runoff flowing on public lands could accelerate the erosional process. The Las Vegas Wash could experience

increased sedimentation and erosion, in an area where 80 percent of the wetland area has already been destroyed by uncontrolled floodwater runoff. Other communities, located outside the Las Vegas Valley, could also experience increased runoff and soil erosion, to a lesser degree than that within the Valley.

From Special Management Areas

Under this alternative, 23 ACECs (969,600 acres) would be designated. Within these areas, competitive OHV use would not be allowed and mineral activities would be intensively managed. ACEC designation would minimize adverse impacts to the soils in critical condition, highly susceptible soils, and saline soils in the planning area. Such management could be significant benefit within the Colorado River drainage, where salt loading continues to be a problem.

WATER RESOURCE MANAGEMENT

From Water Resource Management

Actions initiated by the water program would be of a beneficial nature: water quality would be maintained on those waters presently in compliance with State and/or Federal water quality standards and improved for those found to be in noncompliance. Salt yields would be reduced to a level sufficient to meet State-adopted and EPA-approved water quality standards for the Colorado River. The implementation of the Colorado River Basin Salinity Project, continuation of the USGS salinity study, initiation of a salinity survey to further delineate saline soils, and the preparation of a Watershed Management Plan for that portion of the SRA within the Colorado River Basin would improve management for salinity control. All activities on the public lands would be assessed for point and nonpoint source pollution potential and all such potential minimized by following Best Management Practices.

The Las Vegas District Normal Fire Rehabilitation Plan would be implemented to reduce erosion following wildfires and the resultant loss of vegetative cover. These actions would help to minimize watershed degradation through sediment transport.

From Riparian Management

Long-term benefits to water resources could occur under Alternative E. Improved riparian areas would aid in the stabilization of soils, could decrease water temperatures, moderate peak flows, and stabilize base flows. By the year 1997, 75 percent of riparian areas would be in proper functioning condition. The condition of the Virgin River riparian area would be improved from its current poor to fair condition to a good or better rating. The riparian zones associated with springs exhibiting good recovery potential would be improved from their current poor and fair ratings to a good or better rating.

From Livestock Grazing Management

See analysis under **Soil Resource Management** for additional discussion of impacts related to livestock grazing. In the planning areas (and much of the arid west), grazing impacts are concentrated in riparian areas. A healthy riparian area benefits the water resource through streambank stabilization, reduced sedimentation, decreased water temperatures, moderation of peak flows and stabilization of base flows. An estimated 70 percent of the spring-associated riparian areas are in a poor condition. Many of those areas associated with perennial streams are also in a poor to fair condition. Under this alternative, the Meadow Valley Wash and the Virgin River, including the riparian area and floodplain, would be closed to livestock grazing. A significant, long-term benefit to the water resource could occur through the protection and improvement of approximately 2,925 acres.

From Lands Management

Approximately 111,000 acres would be made available for disposal within the SRA, indirectly impacting the water resource by encouraging growth and increase water use requirements. The Las Vegas Valley is currently in the midst of a water availability problem; any additional water requirements could lead to further over-drafting of available ground water and resultant water quality deterioration. Increased growth and development within the valley would result in more acres of impermeable surface, creating additional storm water runoff, accelerated erosion, and greater peak flow rates. Increased sedimentation and erosion could be expected within the Las Vegas Wash, where 80 percent of the wetland area has already been destroyed by uncontrolled floodwater runoff. Other communities within the planning area could also experience increased amounts of runoff and soil erosion, but to a lesser extent than in the Las Vegas Valley.

From Wilderness Management

A total of 9,751 acres of soils highly susceptible to erosion, 32,178 acres in a critical erosion condition, and 26,569 acres of saline soils are found within all the WSAs. If only the acreage recommended for wilderness designation is approved by Congress, 7,424 acres in critical erosion condition would continue to be protected under the restrictions of a Wilderness Area. The remaining areas with a critical erosion condition (24,754 acres), highly susceptible soils (9,751 acres) and saline soils (26,569 acres) would be open to OHV use on designated roads and trails and would require approved Plans of Operation for minerals activities proposing surface disturbances affecting more than 5 acres.

From Special Management Areas

See analysis of impacts to soil resources from **Special Management Areas.**

VEGETATION MANAGEMENT

From Vegetation Management

Management for desired plant communities would have a net positive effect on vegetation. Efforts to rehabilitate disturbed areas, where feasible, would be undertaken in accordance with the fire rehabilitation plan and project-specific mitigation measures. Only native species would be allowed in rehabilitation efforts, in order to manage toward potential natural communities and to provide optimum native species diversity.

Vegetation would progress very slowly toward the desired plant community or Potential Natural Community. An upward trend representing a progression from one condition class to a higher class (i.e. from mid-seral stage to late-seral stage) would be accomplished in much of the planning unit during the life of the plan. Threatened, endangered, and candidate plant species would be protected by prohibiting construction, mining, and cross-country OHV use where these species are known to occur on public lands.

From Livestock Grazing Management

The number of AUMs licensed has declined from approximately 30,000 in 1988 to 11,800 in 1992. Livestock numbers and AUMs used are expected to decrease for the next few years due to general economics, management to protect threatened and endangered species, and designation of ACECs/DWMAs is finalized. An estimated future level of 6,740 AUMs is projected. On the allotments proposed for reclassification to ephemeral-perennial or perennial and intensive or maintenance management, short-term changes in levels of utilization would be confined to adjustment of perennial vegetation usage (numbers

of livestock and period-of-use). Grazing use would be keyed to specific utilization levels, depending on season of use, thus lessening the adverse impacts associated with livestock grazing.

A total of 11 allotments would be managed under grazing systems in the long term. Above-ground biomass would increase and plant reproductive capability maintained or improved. The vigor of mature plants would be maintained or improved. Increased numbers of immature plants would successfully be established, making more plant material available for litter. If grazing use exceeds these levels, livestock would be removed from the allotment, thus eliminating further adverse impacts to vegetation. In the long term, species diversity should increase and ecological condition approach or reach Potential Natural Community.

From Wild Horse and Burro Management

Wild horse and burro impacts to vegetative resources would be eliminated on the Gold Butte, Ash Meadows, Eldorado, and Amargosa HMAs. Wild horse and burro impacts to vegetation would continue to occur on four HMAs. Managing population levels at a thriving natural ecological balance would minimize or eliminate adverse impacts to vegetation resources. Increased monitoring of utilization levels within the grazed HMAs would clearly indicate when animals should be removed to protect the vegetative resource. This level of monitoring would be proposed in any new HMAP developed for proper herd management. (See also impacts described under **Riparian Management**).

RIPARIAN MANAGEMENT

From Riparian Management

Riparian areas would continue to be managed to maintain, restore or improve these areas to a healthy and productive ecological condition. Under this alternative, 75 percent of the 200 spring-associated riparian areas and those riparian areas associated with perennial streams would be in proper functioning condition by the year 1997. Riparian-wetland areas are considered to be properly functioning when they dissipate stream energy associated with high water flows, thereby reducing erosion and improving water quality; filter sediment and aid floodplain development; improve floodwater retention and groundwater recharge; develop root masses that stabilize streambanks against cutting action; develop diverse ponding and channel characteristics to provide the habitat and the water depth, duration, and temperature necessary for fish production, waterfowl breeding, and other uses; and support greater biodiversity. The proposed fencing of riparian areas impacted by grazing animals would allow the short-term recovery of these areas to good condition.

From Livestock Grazing Management

Closure of livestock grazing throughout most of the SRA would help to mitigate impacts to riparian areas. Riparian areas would be fenced or managed under Prescription 2 utilization criteria, as a prerequisite to grazing. In the short term, livestock would continue to concentrate around springs and riparian areas. Approximately 75 percent of spring-associated riparian areas are in poor condition. Livestock grazing within these areas prevents regeneration of desirable vegetative types, compacts soil, increases surface salinity, overgrazes plant growth, and can lower the water table by increasing soil erosion. Approximately 2,925 acres along the Meadow Valley Wash and Virgin River would be closed to livestock grazing, thus protecting these areas from further impacts.

From Wild Horse and Burro Management

In the short term, heavy use of the limited number of unprotected riparian areas in the Spring Mountains, Johnnie, and Wheeler Pass HMAs would continue to negatively impact these areas. Wild horses and burros would continue to concentrate around springs and riparian areas. An estimated 75 percent of spring-associated riparian areas are in poor condition. Grazing within these areas prevents regeneration of desirable vegetative types, compacts soil, increases surface salinity, overgrazes plant growth, and can lower the water table by increasing soil erosion.

Removal of burros from the Eldorado and Gold Butte HMAs would mitigate grazing impacts on riparian and wash vegetation, benefitting riparian areas in the short and long term. The establishment of AMLs for herd management areas would be based on riparian enhancement and utilization criteria. Riparian conditions could improve in the long term through adjustments in animal numbers to the appropriate levels to maintain the thriving natural ecological balance.

VISUAL RESOURCE MANAGEMENT (VRM)

From Visual Resource Management

Impacts resulting from management of visual resources would be beneficial. Visual Resource Management Classes would be established throughout the planning area to provide standards and guide the development of mitigation measures to protect or enhance visual resources. Approximately 1,125,415 acres would be managed in accordance with VRM Class II guidelines; 1,867,657 acres in accordance with VRM Class III guidelines; and 678,055 acres in accordance with VRM Class IV guidelines. Mitigation measures designed to reduce or eliminate adverse impacts to visual resources would be developed and implemented on a case-by-case basis. These could include changing the color of structures to blend in with the natural color of the landscape, hiding structures or roads behind ridge lines, and by restricting motorized vehicle recreation and activity to either existing or designated roads and trails.

From Lands Management

Urbanization of southern Nevada would cause a loss of the natural landscape in the Las Vegas Valley and the Mesquite, Pahrump, and Laughlin areas. Changes to the form, line, color, and texture of the existing landscape would be caused by new roads, housing developments, commercial development, recreation facilities, and schools.

From Rights-of-Way Management

Designated corridors would help to minimize the proliferation of lines within SRA and concentrate impacts within fewer geographic zones. Small electric power plants and community service lines would require rights-of-ways outside of designated corridors. The corridor network shown on Map 2-7a indicates the proposed utility corridors to accommodate planned development and needs for major electrical transmission. Corridors for pipelines, including gas and water lines, are not included in the analysis and would require additional NEPA analysis. Although designation of corridors in itself creates no visual impacts, the following analysis is intended to evaluate the potential impacts of construction of electrical transmission lines through those proposed corridors.

Construction of approximately four powerlines in the Coyote Springs Valley would have significant impacts on visual resources along U.S. Highway 93 from Nevada Highway 165 south, where only one small line currently exists. Due to technical considerations and the presence of critical tortoise habitat, one line would likely be as close as 600 feet east of the highway centerline. All lines would be on towers

averaging 120-130 feet in height. At the south end of the valley, three lines would cross over the existing line and swing east over the Arrow Canyon Range, while the existing line would continue south along the highway. The visual impacts would be apparent for several miles in each direction along the highway due to the tower height and the location of towers on the ridges of the Arrow Canyon Range. Corridor crossings of major highways, such as Interstate 15 and Highways 93 and 95, would be confined to previously impacted areas and should not adversely impact the visual resources in these locations, despite the heavy use through these areas.

Specific Impact Areas

Rainbow Gardens ACEC, River Mountains ACEC, Henderson area:

Map 2-7a shows corridor alternatives for construction of electrical transmission lines through these areas. The planning objective was to provide a feasible corridor for the construction of up to six additional 500 Kv powerlines which were previously authorized or pending approval.

Corridor A avoids the heart of Rainbow Gardens ACEC and follows a route that would keep the lines between two prominent ridges, obscuring visibility from most of residential Las Vegas. However, it would route lines into an area with no current disturbance for approximately 2 miles, until it intersected with existing roads near the former Sunrise Mountain Landfill. Any above-ground transmission line would also significantly impact the unobstructed view of the Las Vegas Wash park area, currently under development.

Corridor B would route additional lines through the center of the Rainbow Gardens area and over the Red Needle feature in this area. Lines would be in an area currently containing two major transmission lines. Even though other lines currently exist in this corridor, the addition of up to four additional lines would create an additional visual impact by dominating the landscape through the area. The rugged nature of the terrain would impose engineering constraints and potentially create more surface disturbance.

Corridors A and B would require that the IPP and McCullough lines be crossed south of the Las Vegas Wash. The new corridor lines cannot continue on the west side of the present lines due to urban development in the Henderson areas, starting at a new subdivision, Calico Ridge, approximately 1/2 mile south of the Wash near Lake Mead Drive. Other housing areas are located immediately adjacent to the present lines south of Lake Mead Drive. The crossing would require that towers be larger and taller than the line towers, creating a more obvious visual intrusion. Five or six additional towers on each side of the existing six towers could all occur within a distance of approximately 2,500 feet.

Once the crossing is complete, the lines could follow the 1,400 foot corridor, parallel to the IPP and McCullough lines or the 2,000 foot corridor through the River Mountains. In either case, between four and eight parallel lines would be located in the immediate vicinity of Calico Ridge, the entrance road to Lake Las Vegas, and Lake Mead Drive. This would comprise a significant, unavoidable visual intrusion. Impacts on the Lake Las Vegas entrance would be mitigated to some extent by the ridge between the corridor and the entrance road. However, impacts to travelers on Lake Mead Drive and to Calico Ridge subdivision would continue to be major for over a mile south, where the corridor passes over the ridge.

The corridors would have a moderate visual impact on private property and the urban areas of Henderson south of Lake Mead Drive for approximately 2 miles. Impacts intensity would become low to moderate for an additional 2 miles, at which point all construction would be on ridges and ridge tops. Multiple lines would be skylined in this area. In the vicinity of U.S. Highway 95 south of Henderson, impacts would be high where the lines would cross the highway.

Corridor C would route lines through the Lake Mead National Recreation Area and would cross North Shore Road twice, all through areas where no lines currently exist. Routing would also span extensive areas with little topographical relief to minimize the visual impacts.

As the corridors continue south, Corridor D, through the River Mountains, would least impact residents of Henderson. The route would go through a relatively scenic area with minimal other intrusions, thus introducing a long term visual intrusion for recreation users of the area.

From Minerals Management

Visual resources within the Arrow Canyon, Muddy Mountains, and Resting Springs Ranges, all of which are within Class II VRM areas, would be impacted over the long term by projected mineral development. Due to the low unit values of mineral resources in these areas, the large scale, open pit type operations necessary to operate profitably would require strategic location and extensive mitigative measures to maintain the impacts within the standard of Class II VRM.

A major ridge of the Arrow Canyon Range within VRM Class III could be mined for limestone. The large mine required for an economic operation would be visible to travelers along Highway 93 for several miles, creating a permanent, negative impact on visual resources; mitigation of impacts would not be anticipated to be feasible, creating an irreversible effect.

FISH AND WILDLIFE HABITAT MANAGEMENT

From Air, Soil, and Water Management

Improved watershed conditions would increase forage and cover for wildlife. Erosion control, particularly in riparian areas, would encourage vegetative production and improve water quality. These areas would have enhanced value as wildlife habitat. Wildlife would benefit in localized areas, due to improvements in aquatic and riparian habitats.

From Vegetation Management

Managing for desired plant community or PNC would have beneficial impacts on desert tortoise. Greater plant species diversity would provide a variety of forage, increasing the potential for improved tortoise nutrition and decreasing the incidence of malnutrition. More vigorous tortoise populations would result in increased survival and recruitment rates. Managing for PNC would create increased cover, affording hatchling and juvenile tortoises greater protection from predation, and improving recruitment. If individual tortoises are healthier, their resistance to Upper Respiratory Tract Disease (URTD) would be expected to increase.

From Riparian Management

Some wildlife species would benefit from riparian enhancement actions. A greater diversity and density of wildlife species would find habitat in these improved riparian areas. The density and distribution of wildlife species which depend upon riparian habitat could change over the long term. Riparian condition would affect water temperature, silt load, instream flow, spring flow, water quality and salinity of aquatic habitat. Threatened and endangered fish species in the Virgin River could benefit from riparian habitat improvement.

From Fish and Wildlife Habitat Management

Bighorn sheep and desert tortoise populations would benefit from the implementation of Habitat Management Plans and habitat enhancement projects. Approximately 9,243 acres of BLM inholdings in Ash Meadows NWR would be made available for withdrawal by the USFWS for inclusion in the Refuge, facilitating refuge management and indirectly benefiting some species. The construction of upland game guzzlers would have a positive impact on upland game species.

All Federal actions which may affect a threatened or endangered species would continue to be submitted to the USFWS for Section 7 consultation, as required by law. All impacts and their level of significance would be identified at that time and appropriate mitigation measures developed. The BLM would then implement those reasonable and prudent measures necessary to ensure the continued existence of the species.

From Livestock Grazing Management

Closure of ACECs/DWMAs to livestock grazing would have a long-term, beneficial impact on desert tortoise. A greater amount and variety of forage would be provided for desert tortoise, lowering the incidence of malnutrition and osteoporosis. Improved vigor of tortoise populations would reduce the susceptibility of individuals to URTD. Reduced utilization levels would improve cover for hatchling and juvenile tortoises, susceptible to predation. This would lessen competition for forage and the likelihood of trampling of tortoises and burrows. Over the long term, increased recruitment rates would aid in the recovery of the tortoise.

Implementation of grazing Prescription 2 outside of ACECs/DWMAs would support the existing vegetative communities. Restricting the utilization of key forage species to 40 percent would sustain current habitat quality, with possible improvement. Tortoise populations would be maintained at current levels. Other negative impacts to tortoises, such as trampling and competition for forage would continue.

Closure of the Virgin River Bottom Allotment and riparian areas in Ash Meadows, Meadow Valley Wash and Virgin River would have a beneficial impact on threatened and endangered fish, waterfowl, and non-game species. Erosion would be reduced as a result of decreased utilization of forage within the riparian area; water quality would also improve.

From Wild Horse and Burro Management

Wildlife would receive long-term beneficial impacts from the management of the Gold Butte, Ash Meadows, Amargosa, and Eldorado Herd Management Areas for zero horses and burros. Areas with past overgrazing would be allowed to recover. Increased forage and cover would be available for wildlife and competition for forage and water between wildlife and wild burros eliminated in those areas.

Negative impacts to wildlife would continue in the other herd management areas. Wildlife would compete for forage with wild equids, resulting in reduced forage, cover, and water for wildlife. Riparian areas would require protective fencing, making the water less easily accessible to wildlife.

From Lands Management

Discretionary Disposal Areas - Approximately 111,000 acres within the planning unit would be available for disposal through sale, exchange, color-of-title or R&PP patent. No ACECs or DWMAs would be available for disposal, benefiting desert tortoise and other wildlife. Most of the habitat

available for disposal is marginal wildlife habitat due to the proximity of urban areas. Continued expansion of the developed areas would create new marginal areas for wildlife. Direct impacts to desert tortoises would include incidental take and loss of habitat. Indirect impacts would comprise the increased possibility of take due to casual recreational use, harassment by domestic dogs and cats, and degradation of habitat due to casual recreational use and illegal dumping.

Legislative Disposal Areas - Legislative disposal of large blocks of public land would have negative impacts on wildlife in localized areas. Impacts to wildlife could include loss of habitat, degradation of habitat, fragmentation of habitat, mortality of individual animals and disruption of migration routes. indirect, negative impacts would include a potential increase in predation as a result of powerline construction which provides perching sites for ravens and raptors.

Wildlife would experience beneficial impacts under this alternative. Large blocks of habitat, sufficient to support viable populations, would be maintained. Springs and associated riparian habitats would be preserved for wildlife use.

From Recreation Management

Special Recreation Management Areas - These areas would be managed for recreational opportunities ranging from semi-primitive to intensive uses. Management of SRMAs where they overlap with tortoise ACECs/DWMAs could have both a positive and negative impact on desert tortoise. Current levels of recreational use would be better managed, resulting in fewer impacts to wildlife. Conversely, management actions which generate recreational use of tortoise ACECs/DWMAs could negatively impact the desert tortoise by increasing the potential for mortality, harassment, and habitat degradation. Depending upon the level of recreational use allowed, impacts could be significant.

The Nelson Hills and Eldorado SRMAs would not be designated under this alternative, resulting in both positive and negative effects on wildlife. Competitive OHV events would be eliminated in critical tortoise habitat, constituting a positive impact on tortoise. Since the demand for OHV racing is not expected to decrease, races currently held in Nelson Hills and Eldorado Valley would be relocated to other areas, increasing negative impacts on wildlife in other ares.

OHV racing - Acreage open to high-speed, competitive OHV events would decrease when compared to the No Action Alternative. The desert tortoise and other wildlife species would benefit over the long term. Direct impacts associated with high-speed, competitive events include soil compaction and erosion, the widening of existing roads and trails, the creation of new roads and trails, and increased potential for direct mortality and harassment. Off-road activity by spectators can cause extensive damage to vegetation and soils, and direct mortality and harassment of wildlife. These negative impacts would be significantly reduced under this alternative as no competitive OHV events would be allowed in ACECs/DWMAs. Big Dune would be closed to all competitive events, reducing potential negative impacts to candidate species.

Off-road vehicle designations - Wildlife would benefit under this alternative. Negative impacts associated with off-road activity, such as habitat fragmentation and degradation, the proliferation of roads, harassment, vandalism, and road kills would be reduced. The acreage designated as "open" would decrease significantly; one-half of Big Dune, the Nellis Dunes, and non-vegetated portions of dry lakes would be the only areas which would remain open. All ACECs would be designated as "limited to designated roads and trails", further reducing impacts on wildlife. Some roads would be physically closed and rehabilitated. Approximately 50 percent of Big Dune would be closed to casual OHV use resulting in positive impacts to candidate species. Negative impacts would continue on 50 percent of the dunes. OHV use in WSAs not designated by Congress would be limited to designated roads and trails.

From Rights-of-Way Management

All ACECs/DWMAs would be designated as rights-of-way avoidance areas and be excluded from material sites. Over the long term, there would be beneficial impacts to wildlife. Under the No Action Alternative, no corridors were designated in Clark County. The designation of utility corridors in Alternative E would facilitate the mitigation of impacts from proposed utilities and prevent the proliferation of rights-of-way throughout the Resource Area. Concentrating powerlines in narrow corridors would restrict and localize raven perching sites. Despite the designation of corridors, overhead powerlines would have a negative impact on desert tortoise by providing additional perching sites for ravens, causing loss and degradation of habitat, and direct mortality during construction. Access roads for utility rights-of-way could also result in increased access into wildlife habitat. Although these impacts may not be individually significant, cumulatively they would contribute to habitat degradation. Increased access would create a greater potential for incidental "take", harassment, and degradation of habitat. These impacts would be reduced under this alternative as areas within ACECs and outside of corridors would be designated as avoidance areas. Impacts to wildlife from material sites, which would include loss and fragmentation of habitat and direct mortality, would be greatly reduced under this alternative.

Raptors could benefit in some areas from construction of powerlines which provide additional nesting and perching sites. Consolidation of power lines within corridors would be less beneficial to raptors than spacing the lines out over a larger area, as fewer nesting and perching sites would be available. Direct negative impacts to raptors include accidental electrocution or collision with lines. Consolidation of lines in a small area may increase the potential for birds to collide with lines. Impacts to wildlife would be partially mitigated by implementing standard mitigation procedures.

The designation of corridors in this area could have negative impacts on California bear poppy in localized areas. A proposed corridor would cross the most dense and widely distributed population of poppies in the planning unit. Impacts to poppies would be mitigated to some extent by implementation of standard mitigation procedures for special status plant habitat. However, since all attempts to transplant or germinate this species have been unsuccessful, residual negative impacts to the poppy would remain.

From Wilderness Management

In the short term, wildlife would benefit under IMP. Long term, the designation of wilderness would positively impact wildlife. Although some management activities may be precluded in wilderness areas, long-term habitat protection from OHV use, mineral exploration and development, and associated indirect impacts would outweigh any negative effects.

From Minerals Management

Mining and other mineral developments would contribute to impacts on wildlife habitat and population. Negative effects from mineral exploration and development under this alternative would include direct mortality during mining activities. The loss and degradation of habitat, harassment, and an increased probability of incidental "take" would constitute indirect impacts. These would occur during exploration and development activities which could also create new roads, further fragmenting wildlife habitat. Some effects would be substantially mitigated through standard stipulations and mitigation measures developed through Section 7 of the *Endangered Species Act* and other relevant legislation and policy.

Fluid minerals - Ash Meadows and Virgin River floodplain ACECs and the Gold Butte Traditional Lifeways area would be closed to fluid mineral entry, resulting in a benefit to threatened and endangered wildlife. No surface occupancy on springs/riparian habitat would reduce negative impacts from exploration and development. Closures would afford greater protection to critical habitats in Ash Meadows NWR.

Projected exploration for oil and gas in the Muddy Mountain, Arrow Canyon, and Mount Stirling WSAs could have short-term negative impacts on wildlife. Arrow Canyon and Muddy Mountain WSAs are both high quality bighorn sheep habitat. The Mount Stirling area (north end of the Spring Mountains) is historical bighorn sheep habitat which is currently either unoccupied or lightly used by bighorn sheep. Recent reintroductions of bighorn sheep into the adjacent Last Chance and Specter Ranges is expected to increase use of the north Spring Mountains by bighorn sheep. Construction of access roads into the WSA would increase access into bighorn sheep habitat, increasing the potential for human impacts to habitat and animals. Mitigation measures and standard operating procedures would lessen but not eliminate these effects.

Seismic lines utilizing cross-country travel would result in the creation of two-tracks. These two-tracks would then become existing trails, increasing vehicular travel into desert tortoise and bighorn sheep habitats. There would be a high potential for crushing of small wildlife such as desert tortoise, lizards, snakes and small mammals during seismic operations. Mitigation measures, including the use of low pressure tire vehicles and seasonal restrictions on seismic activities, could lessen, but not eliminate, these potentially negative effects.

Development of a large oil and gas field in the Muddy Mountains or Arrow Canyon areas would have negative impacts on desert tortoise and possibly critical habitat. Depending upon the location of the field, there would also be negative impacts on other wildlife and candidate plant species. Impacts would include loss and fragmentation of habitat, mortality of individuals, and increased access. Mitigation of impacts, to the extent possible, would be developed through Section 7 consultation. Recommended mitigation measures would include measures to reduce mortality of individual tortoises, particularly in critical habitat, measures to reduce the amount of surface disturbance, and off-site mitigation fees.

Locatable minerals - The Gold Butte Traditional Lifeways area, Ash Meadows, River Mountains, and Big Dune ACECs would be closed to operation of the mining laws, constituting a positive impact to special status species and other wildlife. All springs and riparian areas would also be closed to the operation of mining laws, resulting in a positive impact on wildlife. Negative impacts from the destruction of surface resources by mining could be more easily mitigated as a mining Plan of Operation, rather than a mining Notice, would be required in all ACECs. Large scale mining of limestone in the Arrow Canyon Range would produce unmitigatable impacts on desert bighorn sheep habitat during operations.

Mineral materials - Closed areas would include the Gold Butte Traditional Lifeways area, Ash Meadows ACEC, Big Dune ACEC, River Mountains ACEC and all proposed tortoise ACECs, as well as all spring-associated riparian habitat. Wildlife would benefit from reduced habitat loss, degradation, and fragmentation.

Non-energy leasables - Closed areas would include the Gold Butte Traditional Lifeways area, Ash Meadows, Big Dune, River Mountains ACECs, tortoise ACECs/DWMAs, and the Virgin River riparian zone. Wildlife would benefit from reduced habitat loss, habitat degradation, habitat fragmentation, harassment, and incidental take.

Mining exploration could create new roads and disturb up to 5 acres, under a Notice of Intent. Endangered wildlife species would be at risk from destruction, since the Notice merely acquaints the proponents of responsibilities, but carries no stipulations. Locatable mineral exploration could be anticipated to disturb up to 2,000 acres, in addition to approximately 2,000 acres from mineral developments. These actions would have a long-term, site-specific negative impact on wildlife habitat.

The following WSAs would require a Plan of Operations for surface disturbance in excess of casual use: Garret Butte, Ireteba Peaks, Jumbo Springs, Lime Canyon, Million Hills, Fish and Wildlife #1,2,and 3. An approved Plan would minimize impacts through the development of mitigation and reclamation measures.

From Acquisitions Management

The BLM would attempt to acquire key, undeveloped private lands within ACECs, conferring a long-term benefit to wildlife. Wildlife habitats would be consolidated, facilitating management of large blocks of public lands.

From Special Management Areas

Designation of ACECs would benefit threatened or endangered species and wildlife in general. These areas would be managed to preserve the values of the area and other activities would be limited. Most wildlife species would benefit from reduced loss, degradation, and fragmentation of habitat. Habitat of some candidate species would be protected, preventing future listing of the species as threatened or endangered.

Essential habitat in Ash Meadows would be managed for the recovery of the Ash Meadows ecosystem and endemic species. The ACEC would be closed to mineral entry, eliminating the impacts associated with exploration and development activities. Potential impacts from recreational uses, such as habitat degradation, erosion, and soil compaction, would be reduced. Big Dune would be protected. Impacts to special status species from OHV use would be reduced. The ACEC would be withdrawn from mineral entry, resulting in beneficial impacts to special status species. Impacts to bighorn sheep in the River Mountains from OHV use would be reduced. A mining Plan of Operations would be required on all mineral development, allowing mitigation of impacts associated with mining. Mesquite habitat in Amargosa Valley would be designated as an ACEC and potential impacts from mining and illegal harvest of wood would be reduced. Mesquite would be managed to provide ample cover and forage for wildlife.

Desert tortoise habitat totaling 798,000 acres would be managed primarily for the recovery of the species, resulting in positive impacts to the desert tortoise. Ecological condition in the ACECs/DWMAs would be improved to allow the recovery of the species; impacts to tortoise would be mitigated. Conflicting land uses would be limited, reducing both direct and indirect impacts on the tortoise. Protective measures implemented in the ACECs, such as elimination of grazing by livestock and wild horses and burros, would allow for improvement of tortoise habitat and upward population trends in tortoise populations.

The *Recovery Plan* sets four criteria for delisting of the desert tortoise. The first is that populations exhibit a statistically significant upward population trend towards target density or remain stationary at target density for at least 12 years. Current study plot data suggests that populations in Coyote Springs Valley (Arrow Canyon/Coyote Springs ACEC/DWMA) remained relatively stable or increased slightly between 1990 and 1992. Populations at Christmas Tree Pass (Piute Valley ACEC/DWMA) and Gold Butte (Gold Butte ACEC/DWMA) study plots appear to have declined between 1990 and 1992.

The data indicates that tortoise populations may be stable or increasing in at least one proposed ACEC/DWMA; additional monitoring will be necessary to determine population trends.

The second criterion states that enough habitat must be protected within a recovery unit, and/or the habitat and desert tortoise populations must be managed intensively enough to ensure long-term population viability. The proposed ACECs/DWMAs, in conjunction with adjacent habitats on other Federal lands in Nevada, California, and Arizona should be sufficient to support 50,000 adult tortoises at target densities.

The third criterion requires that regulatory mechanisms or land management commitments must have been implemented to provide for adequate long-term protection of desert tortoises and their habitat. The proposed DWMAs will be designated as Areas of Critical Environmental Concern, resulting in continued protection of the areas, even in the event that the desert tortoise is delisted in Nevada. The ACECs/DWMAs will be 1) designated as "limited to designated roads and trails"; 2) livestock grazing allotments within the DWMAs will be retired; 3) wild horse and burro herd management areas which overlap with DWMAs will be managed for a herd size of zero; and 4) public land within the DWMAs will not be available for disposal. These decisions will be implemented with the approval of a RMP.

The final criterion states that the population in the recovery unit is unlikely to need protection under the *Endangered Species Act* in the foreseeable future. This would require detailed analysis of monitoring data to determine success.

One of the delisting criteria, regulatory mechanisms or land management commitments, would be met immediately upon implementation of the final RMP. The other criteria would take some time to meet. Implementation of the Alternative E would have a positive benefit to the desert tortoise as it would allow for recovery and delisting of the species.

LIVESTOCK GRAZING MANAGEMENT

From Vegetation Management

Protection of candidate plants in SRA would require management actions which assure that the species do not require listing as threatened or endangered. Such actions could impact livestock management on allotments where candidate species occur, potentially changing grazing strategies or causing the removal of livestock. Utilization levels identified for key forage species could adversely effect livestock operators and the economic viability of their operations.

From Riparian Management

Livestock operator who are unwilling to manage use in riparian areas could sustain negative economic impacts. Riparian areas in SRA are few in number and tend to heavily grazed at various times during the year. Unprotected riparian areas where livestock continue to graze would constitute a limiting management factor. Utilization levels for riparian species would be used to determine when livestock would be either removed from the allotment or relocated within the allotment.

From Fish and Wildlife Habitat Management

The management goals identified in the *Recovery Plan for Desert Tortoise* would have far reaching negative impacts to the livestock industry. Only 11 allotments within the SRA would be available for domestic livestock grazing, even though an active preference would be set for 16 allotments. Grazing use would be authorized in accordance with Prescription 2 and *Recovery Plan* objectives. This would

reduce the number of AUMs available from approximately 17,100 to 6,740, in the reasonably foreseeable future. (Refer to the Socio-Economic section for a detailed analysis of livestock grazing economics.)

Forty-three allotments would be closed to all domestic livestock grazing. This figure includes closures carried forward as valid existing management, one allotment for lack of base property, two allotments closed due to conflicts with riparian management, and the Meadow Valley Wash and Virgin River floodplain and riparian zones.

This action would close five currently active allotments to livestock grazing and put up to 12 operators out of business. Since the Lower Mormon Mesa Allotment was not included as critical desert tortoise habitat, it would not be closed to livestock grazing from March 1 to June 14. However, the utilization restrictions of Prescription 2 grazing would apply. Use during the spring would directly benefit the permittee.

From Ephemeral/Perennial and Perennial Reclassification

Livestock permittees would benefit from the establishment of preference since an AUM has an implied value, determined by buyer and seller. In the short term, 14 allotments would be reclassified to ephemeral/perennial, with seven reclassified as perennial. (See Table 2-4). Since the initial preference would be determined from the last 10 year's average licensed use, this change could set numbers either too high or low. Initial AUMs identified would set an active preference for 16 of 21 allotments, at a combined 13,200 AUMs of preference. This figure would be much higher than the current 1,500 AUMs of active preference identified for the Mt. Stirling Allotment. A total preference of 17,100 AUMs would be identified for the planning area. Most of the allotments scheduled for preference would be closed to grazing in this alternative.

The development of intensive management on the allotments would benefit vegetative resources in the long term. An increase in perennial vegetative species would be realized by allowing plants to set seed for seedling establishment. Strict utilization standards would allow for no less than 25 percent of the seed stalks to remain each season. Increased production of perennial forage species could result in a net long-term increase in AUMs above the current levels.

From Wild Horse and Burro Management

Wild horses and burros in four different HMAs (Muddy Mountains, Wheeler Pass, Red Rocks, and Johnnie) would continue to directly compete with livestock for forage, water, and space on four grazing allotments (Mt. Stirling, Lucky Strike, Wheeler Wash, and White Basin). This impact would be lessened by managing wild horse and burro numbers in a thriving ecological balance and by restricting 10 percent of water capacity at spring sources to meet riparian objectives.

WILD HORSE AND BURRO MANAGEMENT

From Air, Soils, and Water Management

In the short term, management actions to protect or improve soil and water resources would impact wild horse and burros management by requiring a reduction in wild horse or burro numbers to allow for the recovery of vegetation, especially in riparian areas. Over the long term, these actions would have a beneficial indirect impact on wild horse and burro management by improving the overall condition of the vegetation and water quality and quantity within HMAs.

From Fish and Wildlife Habitat Management

Management of threatened and endangered species could have major impacts on wild horse and burro management. In extreme cases such as Ash Meadows, wild horse and burros would continue to be excluded from areas where they occurred in 1971, in order to protect and ensure the recovery of threatened and endangered plant species unique to the Ash Meadows ecosystem. Wild horse and burro populations could be reduced to ensure adequate forage availability for the desert tortoise.

The designation of ACECs/DWMAs would require the removal of all wild horses and burros from the Gold Butte and Eldorado HMAs. This would increase to four the number of HMAs with a zero AML. The remaining four HMAs would require that an AML be set, as shown in Table 2-6, and the removal of approximately 300 burros.

From Lands Management - Pre FLPMA Rights-of-way

Some pre FLPMA rights-of-way did not define specific requirements to provide for wild horse and burro movement across fenced highways. Any fence constructed along a highway without an underpass to allow wild horse and burro movement would have significant negative impacts on the animals. Wild horses and burros could become confused and possibly disoriented, causing some to run into the fences, sustaining injuries to the animals and damaging the fence. Fencing highways would hinder current animal trailing patterns and possibly eliminate access to needed water sources. Animals could also be concentrated in smaller areas, thus putting additional stress on the habitat. Any fencing of highways, without underpasses, could require development of additional water to ensure animals do not die of thirst.

CULTURAL RESOURCE MANAGEMENT

The definition of impacts to cultural resources relies on a minimal concept which implies that any kind of change to an historic feature, prehistoric site or cultural resource, no matter how small or seemingly minimal, constitutes an impact. Indirect and direct impacts are treated as one under cultural resource management. Thus, the estimated acreages and numbers of cultural resources projected for impacts from each management program should be larger than that calculated for direct impacts.

From Fish and Wildlife Habitat Management

Designation of acreage for tortoise ACECs/DWMAs and other ACECs would aid in the preservation of a significant number of eligible sites by restricting and inhibiting potentially threatening actions in the following zones: Piute Valley, Eldorado Valley, Ash Meadows, Gold Butte area and the Arrow Canyon Range. This program should have a positive affect on cultural resource management.

From Livestock Grazing

The continuation of livestock grazing on approximately 800,000 acres of public lands and the construction of rangeland improvements would have the potential to affect 1,700 eligible sites. Affects could include trampling of sites by cattle, surface disturbance from vehicles used by permittees, and the destruction of sites during range improvement construction. In particular, the integrity of archaeological districts in the Muddy Mountains and McCullough Mountains may be sacrificed.

From Cultural Resource Management

Implementation of this alternative would positively impact cultural resource management through the designation of separate ACECs for 11 archaeological and cultural locations.

From Special Areas Management

The management of approximately one million acres as ACECs/DWMAs would continue to aid in the preservation of 2,100 eligible sites by restricting surface-disturbing activities.

From Minerals Management

Encouragement of fluid, locatable, saleable, and non-energy leasable mineral development within approximately 80 percent of the planning area has the potential to affect 7,500 eligible sites. The effects would include total disturbance of properties during seismic testing, open pit mining, opening of previously inaccessible areas, and the direct and purposeful mining of historic and prehistoric sites under the concept of exploration. The minerals program has the potential for significant impacts to cultural resources. Approximately 960,000 acres of ACECs require minerals actions to achieve compliance with the *National Historic Preservation Act*. While these restrictions limit untreated destruction of cultural values, the consumptive nature of mining operations would require scientific removal of archaeological data, thus causing irrevocable and irretrievable impacts to eligible cultural resources.

RECREATION MANAGEMENT

From Fish and Wildlife Habitat Management

Opportunities for OHV events would be lost on approximately 798,000 acres of public land within SRA due to restrictions imposed in areas within ACECs/DWMAs managed for the recovery of the desert tortoise. Seven to nine OHV races would be displaced annually in the Nelson Hills including the SNORE Midnight Special, M.R.A.N club, SNORE Double Trouble, Jackrabbits, and Wild Bunch motorcycle races. This loss of opportunity would displace users to other areas such as the Jean/Roach Dry Lake, Pahrump Valley, Laughlin, and the Nellis Dunes. Use in the Nellis Dunes would be anticipated to increase by 50 percent or more; use in the Jean/Roach Dry Lake area by at least 35 percent; use in the Pahrump Valley and Laughlin areas would increase by at least 50 percent. Based on current volume, 10 to 15 percent of special recreation permit applications would either be denied or cancelled due to time and resource constraints associated with protection of the desert tortoise habitat.

Recreational uses such as OHV touring and free-play, hunting, camping, picnicking, and other recreational competitive and commercial activities would be restricted, eliminated, or entirely displaced to other locations due to motorized vehicle closures and limitations designed to protect desert tortoise habitat. Motorized vehicle closures or limitations in ACECs/DWMAs could directly affect 15 percent of all visitor use in SRA (or approximately 125,000 visitor days).

Closure of up to one-half of Big Dune to OHV activity for protection of beetle habitat would concentrate the existing OHV use. It may also displace current users to other locations such as the Dumont Dunes in California. Long-term management of the area would depend on the results of the projected biological study of the habitat needs.

The construction of reservoirs, spring developments, riparian fencing, and bighorn and upland game guzzlers would affect opportunities for semi-primitive nonmotorized recreation, depending on locations, proposed access, and maintenance needs. These same developments could increase opportunities for hunting and wildlife viewing and photography. Increased development of springs and other water sources could increase hunting opportunities by 10 percent or to a total of 36,000 visitor days per year.

From Cultural Resource Management

The development of interpretive signs, trails, and brochures at Willow Springs, the Old Spanish Trail/Mormon Road, and at Gypsum Cave would enhance recreation opportunities and public understanding of significant cultural values. Additional opportunities for "Adventures in the Past" type programs would be available through the preservation of line shacks, mining cabins, and other historic structures. Establishment of cultural resource ACECs would ensure preservation of cultural resources for potential discovery by recreational users and could maintain areas for semi-primitive recreation opportunities.

From Lands Actions

Upon disposal of the lands within the Eldorado Valley Lands Act transfer area, a significant loss of recreation opportunities could occur. Six OHV events, two model airplane events, a commercial ultralight plane operator, and thousands of OHV, camping, ultralight, light aircraft, model rocket, hunting, and other dispersed recreational events occur annually in this area. Transfer of those lands would displace or eliminate up to 50,000 visitor days per year. Disposal of lands under the *R&PP Act* would enhance Rural and Modern Urban recreation opportunities in the Las Vegas Valley, Laughlin, Mesquite, Pahrump, and Boulder City areas.

From Recreation Management

Wilderness Study Areas not designated by Congress would be managed within the OHV closed designation, retaining semi-primitive recreation opportunities throughout most of the areas where they currently exist. An estimated 12, 190 acres would be closed to OHV travel, 2,339,757 acres designated as limited to existing roads and trails, 1,310,000 acres limited to designated roads and trails, and 9,180 acres open to casual use on all acres. Plans of Operation could still be approved for mineral development which would reduce the availability of semi-primitive recreation opportunities. However, the frequency of surface-disturbing activities in areas of marginal mineral values would be reduced, by requiring that such activities be conducted under an approved Plan of Operations. Any new access roads constructed for mineral uses would be reclaimed to a natural-appearing condition, maintaining the existing level of vehicle use over the long term. Since the OHV closed designation prescribed within this alternative would allow travel along routes currently used for recreational access, OHV use would not be different from the current situation.

The population growth of southern Nevada would continue to increase the demand for recreational opportunities in the SRA. This demand would primarily affect lands surrounding populations centers such as Las Vegas, Laughlin, Mesquite, Boulder City, and Pahrump. Outlying areas would also receive greater demand from people seeking solitude from urbanization. Visitation is anticipated to increase by 10 percent or 144,810 visits, within the next decade (total visitor days per year would equal approximately 1,592,910); this increase is project to occur whether BLM provides additional opportunities or not.

Recreational conflicts would be lessened within the Las Vegas Valley, Rainbow Gardens ACEC, the Apex area, and the Nellis Dunes. Recreational shooters, equestrian riders, hikers, bicyclists, OHV recreationists, and other passive recreation users of the public land would be directed to areas appropriate for their particular use, or where uses would be compatible. Conflicts with shooting that could cause user displacement, loss of solitude or a quality recreation experience, and, in some instances, fatalities or wounding by careless shooters would be lessened. The Sunrise Mountain area would be managed for more extensive recreation (compatible) opportunities, helping to eliminate the impacts associated with recreational shooters.

Recreation Activity Management Plans would developed for Special Recreation Management Areas within SRA to determine the amount and type of recreational developments need for pro-active recreation management in areas of heavy, and potentially conflicting, recreational uses. Heavy use in sensitive locations (such as tortoise habitat and archeological sites) and overcrowding would be avoided. The integrity and quality of area caves could be enhanced through active management to decrease vandalism or long-term degradation.

From Rights-of-Way Management

Should designated rights-of-way corridors be developed, impacts would affect semi-primitive nonmotorized and semi-primitive motorized recreation opportunities throughout the SRA. Increased access could increase opportunities for hunting, camping, and OHV touring, racing, and free-play.

WILDERNESS MANAGEMENT

From Minerals Management

Mineral activities in WSAs would continue to be managed under the IMP guidance until Congressional designation or release. In those WSAs not designated as wilderness, minerals extraction would be limited by the mineral values present and the economics of development. Locatable mineral development, oil and gas exploration and development, and mineral material sales could impact up to 2,000 acres; viable operations would likely be large scale or open pit mines. Locatable non-metallic minerals would potentially be developed in the Resting Springs, Muddy Mountains, Arrow Canyon, and S. McCullough WSAS. Mineral material sales could occur in the Nellis 1, 2, and 3 WSAs. Leasing and exploration activities would be anticipated for oil and gas with the potential for discovery and development in the Muddy Mountains, Arrow Canyon, and Mt Stirling WSAs. An additional 602 acres of long-term impacts on resources from oil and gas exploration could be anticipated. Initial geothermal investigations could be made in the Resting Springs and Muddy Mountains WSAs. If minerals developments are located on the peripheries of the WSAs, the effects on natural values would be minimal. In the event that mines and facilities were to be developed in the interior portions of WSAs, the impacts to recreation values could be more significant.

Projected maximum disturbance in areas released from wilderness consideration would be 2,000 acres, based on oil and gas exploration and production (500 acres), the development of one large clay mine (500 acres), a large silica mine (500 acres), a limestone quarry (200 acres), a gypsum mine (200 acres), and 20 exploration efforts or small mines producing uncommon varieties of stone, sand, or clay (100 acres). Mitigation and compliance-related inventories would lessen the impacts to values, but could not eliminate such effects which could be significant in localized areas.

RIGHTS-OF-WAY MANAGEMENT

From Rights-of-Way Management

Utility corridors, ranging in width from 1,000 to 3,000 feet, would be designated within the planning area. The scenic values and integrity of the surrounding area would be better protected by minimizing the proliferation of single-use utility lines. Although utility rights-of-way would not be limited to designated corridors, all efforts would be focused on utilizing corridors whenever possible and to their maximum capacity. Prospective right-of-way holders would benefit through the use of existing data for environmental compliance analysis. In some instances, location and size of designated corridors could negatively impact proposals for uses not compatible with other corridor uses.

MINERALS MANAGEMENT

From Fish and Wildlife Habitat Management

Special management requirements, as a result ACECs/DWMAs designation, would increase the costs of mineral operations and reclamation of disturbed areas and possibly delay operations. Mitigation fees required could make low unit value minerals or small volume high value minerals economically questionable, thus negatively impacting individual operators.

From Cultural Resource Management

Mining operations must comply with Section 106 of the *National Historic Preservation Act* (NHPA). Cultural resources are protected by the withdrawal of eligible archaeological sites and areas from mineral law uses, and through the requirement of specific evaluation and treatment prior to surface disturbing actions.

The designations of ACECs or areas "closed" to off-highway vehicles require implementation for inventory and mitigation procedures for all mineral exploration actions. The designation of Traditional Lifeways Areas requires consultation with the Nevada State Historic Preservation Officer on the effects of all mining activities. Under Section 106 of NHPA, cultural resources must be identified through adequate inventory actions, evaluation of archaeological and cultural sites, determination of effect on the properties, and attempts to mitigate adverse effects. The procedures could range from simple inventory efforts to complex evaluation and mitigation activities that could indefinitely delay the proposed mineral exploration and recovery actions. Such procedures could determine that the project be considered economically unfeasible.

On the remaining lands, including the 512,000 acres initially studied as WSAs but not designated as Wilderness, BLM would be allowed 15 days for inventory and evaluation of eligible sites that could be affected by the activities. The claimant would be notified of eligible sites and the procedures for protection and mitigation. In special cases, the process to conduct avoidance or mitigative activities could necessitate delays in mining operations.

SOCIO-ECONOMIC VALUES

From Fish and Wildlife Habitat Management

Designation of ACECs/DWMAs would place approximately 798,000 acres of desert tortoise habitat under high standards of protection to ensure the recovery of this threatened species. Protection and

reclamation standards for uses in these areas could increase costs of operations for minerals developments and rights-of-way construction. Section 7 consultation would continue on all activities proposed in tortoise habitat. A jeopardy opinion from the U.S. Fish and Wildlife Service through consultation could render some projects economically unfeasible for the proponents. Pipelines and other surface-disturbing activities could be significantly impacted by technical or economic constraints imposed by management for the recovery of the desert tortoise.

From Livestock Grazing Management

Reclassification of ephemeral range to ephemeral/perennial or perennial would improve the economic potential of livestock operators in SRA. Intensive management systems developed for ephemeral/perennial could improve forage production and species composition, improving the stability and long-term productivity of individual allotments. The operators would benefit from a more stable and predictable economic climate.

The economic impact of livestock grazing closure in critical desert tortoise habitat would include the loss of all gross income ($229,482) to the regional economy. Gross income was estimated based on marketing of yearling calves at an average market weight of 500 pounds, with an average value per pound of $.90. Average calf crops of 80 percent were used and a ratio of one bull for 20 cows. Loss to 12 operators, based on a 4 percent net profit on gross income, would be estimated at $9,179. Specific information on profit or loss to operators as a result of livestock grazing closures is unknown. Individual operators may have higher or lower net profits, depending on a number of variables which range from weather and range conditions to herd management strategies.

Seventeen operators are currently grazing 979 cattle and 12 horses on approximately 598,000 acres, with 7,865 AUMs. The current gross economic livestock production of federal lands in the planning unit is estimated to be $342,871.Closure of grazing on critical habitat would reduce the number of active operators to five, grazing 308 cattle and four horses (2,601 AUMs) on approximately 329,000 acres. If six currently inactive allotments were to be reactivated, 660 cattle and 11 horses (6,740 AUMs) could be expected to graze on approximately 845,200 acres. The projected gross would be $293,827, with a total net income to operators of $11,750. This would be reduced to $113,389, upon closure of five additional active allotments, as proposed under Alternative E.

From Lands Management

A total of 111,000 acres are identified for discretionary disposal under this alternative. While it is impossible to predict the number of acres that might successfully be disposed of through sales, some reasonable conclusions regarding values can be drawn.

The majority of land disposal could be anticipated to occur in the Las Vegas Valley, Laughlin, Mesquite, and in the Apex area. Land disposal in the Las Vegas area would be estimated at 20,000 acres, of which 2,000 acres would be sold to local governments at $2.50 per acre. Approximately 7,500 acres is scheduled for sale to North Las Vegas. The expected benefit to local governments, based on current estimated values would be up to $257,000,000.

Transfer of 20,000 acres of federal lands to private ownership could benefit the Treasury in the amount of $105,000,000. Tax bases for local governments would also increase by this amount. Actual dollar amounts may increase substantially over the life of the plan.

The disposal of 18,000 acres of federal lands for development purposes within the Las Vegas hydrographic basin would have a water demand 66,600 acre feet, based on Las Vegas Valley Water District estimates (3.7 acre ft/acre demand). Such disposal would place all land developers in

competition for available water and potentially depreciate land values. Approximately 150,000 acres of private land occur in the Las Vegas Valley, with a potential water demand of 555,000 acre feet. This would comprise a water demand which is additional to current use, estimated to be fully permitted by the year 2007. The disposal of large blocks of BLM-administered land would create infrastructural costs and benefits to the community and adjoining land owners.

From Rights-of-Way Management

Designated corridors would simplify the right-of-way authorization procedures and reduce planning costs for utility companies. Since flexibility in future rights-of-way locations would be lessened under this alternative, the result could be longer transmission lines, increased construction costs, and reduced systems reliability. The design of corridor crossings could affect the reliability of power systems.

The value of private lands near future transmission lines could decrease since such lines are perceived to affect the scenic qualities of adjacent lands. The estimated acreage of private lands within corridors proposed in this alternative is approximately 1400 acres; this acreage includes entirely unimproved, mostly rural property, and patented mining claims. Review of appraisals and discussions with purchasers of BLM property have documented the significant impacts on property values due to transmission lines. Value reductions have been in excess of 50 percent when a transmission line transects a parcel (USDI, BLM 1990). The presence of two 500 Kv transmission lines along the west boundary (600 feet) resulted in a 30 percent reduction in values for the 480 acre exchange parcel. The location of between six and eight large powerlines within the viewshed of subdivisions like Calico Ridge could significantly impact those property values.

From Minerals Management

Minerals development potential would be reduced under this alternative. Increased demand for sand and gravel and the additional haul distance to reach material sites at more remote locations could provide upward pressure on prices. The economic potential of mineral development cannot be estimated because of the great uncertainty regarding the existence of mineral deposits in sufficient quantity and quality to be commercially feasible. Long-range mineral resource evaluation and market demand are, at best, speculative and dependent on regional, national, and even worldwide factors.

According to data from the 1992 Nevada Department of Minerals Mine Registry Data Base, 775 mining personnel work within the planning area, with companies showing an annual payroll of $22,342,000. The 1992-1993 estimated net proceeds of mine taxes is $300,000 and the estimated value of products mined is $60,000,000.

Potential development of minerals in WSAs released from wilderness consideration by Congress would be projected to have minimal economic impacts. Sand and gravel resources would be the most valuable minerals, particularly if the urban areas of southern Nevada continue to grow. Supplies of most common varieties are currently sufficient near the growing areas. No material sales would be anticipated in released WSAs in the short term, although demand for building stone may increase. The current annual value of common variety sand, gravel, and silt mined on BLM lands in SRA is approximately $800,000. This value would be projected to increase at the general inflation rate, plus increased demand factor, in the long term. Due to the shorter haul distances, the potential for development would be greatest in the Nellis WSAs for sand, gravel, and silt. Opening that WSA to material sales could involve 500 acres from which 19,360,000 cubic yards could be extracted, at an estimated value of $1.00 per yard.

Long term mining projects, such as the high quality silica mine (Simplot) near Overton, could produce as much as $8,000,000 of product annually, with a payroll of $1,400,000 in wages, employing

between 40 and 50 people. The life of such projects would continue throughout the planning period. A similar mine could be projected for the Muddy Mountains silica areas.

An industrial clay production mine, such as the IMV mine near Ash Meadows, could produce between $5,500,000 to $6,000,000 dollars of product annually, employees 40-50 personnel, and pays $2,300,000 in total wages and benefits. A similar mine could be anticipated for development in the Resting Springs WSA, should Congress release the area from wilderness study. A large limestone quarry in the Arrow Canyon WSA could provide equivalent economic benefits.

The release of WSAs from wilderness consideration could provide opportunities for the development of small number of quarries and mines of minerals materials. The total economic benefits which could be derived from these materials would be less than that projected for silica, clay or limestone operations. Oil and gas exploration would not be anticipated to generate significant economic values for the planning area.

CUMULATIVE IMPACTS

INTRODUCTION

Cumulative impacts are those impacts which result from the incremental impact of an action, decision, or project in combination with other past, present, and reasonable foreseeable future actions, regardless of the agency (Federal or non-federal) or person undertaking such other actions. Cumulative impacts can result from individually minor but collectively significant actions over a period of time, from similar projects or actions, and from projects or actions which have similar impacts.

PARAMETERS

The parameters for the cumulative impact analysis are used in concert with the assumptions for analysis identified in Chapter 4. These focus and direct the analysis effort to ensure that adequate information will be gathered and analyzed in order to make a reasoned decision.

- The cumulative impact analysis will be limited to the anticipated effective life of the Stateline RMP, which is 20 years.

- Air, water, desert tortoise habitat, cultural resources, lands, and recreation are the only resources that will be discussed in the cumulative impact analysis. These resources are affected by both private and BLM actions and are subject to cumulative impacts. All other resources and programs addressed by this RMP are primarily impacted only by BLM actions. The impacts from private actions are either nonexistent or are insignificant. The preceding alternative-by-alternative analysis of impacts is limited to BLM actions.

- Cumulative impacts to air resources will be analyzed only within the Las Vegas Valley Air Quality Non-attainment Area. Cumulative impacts to desert tortoise will be analyzed within both the Las Vegas Valley and for the entire planning area.

PAST, PRESENT, AND REASONABLY FORESEEABLE FUTURE ACTIONS

Past and Present Actions

Past and present actions within the planning area can be divided into two categories: BLM actions and all other types (including other Federal, state, local government, and private actions).

BLM Actions - Past and present BLM actions and BLM-authorized actions are partially identified and described in Chapter 3, *Affected Environment*, and the No Action Alternative of the Draft RMP/EIS. Where necessary to support a Reasonable Foreseeable Development Scenario (RFDS), additional information is provided.

Other Actions - Other past and present actions in the planning area would be difficult, if not impossible, to accurately describe in this document. All private actions that would likely contribute to the cumulative impacts are assumed to have required some type of governmental approval and would, therefore, appear within the records of the various Federal, state, and local government offices.

Actions by local governments are directly tied to either the above-mentioned private actions or to BLM actions. Clark County, Nye County, and the incorporated cities of Las Vegas, North Las Vegas, Henderson,

Boulder City, and Mesquite own insignificant amounts of real property. In terms of their cumulative impacts, the local governments serve as permitting agencies for private businesses or individual citizens. Local governments acquire the use of public lands at nominal costs under the auspices of the *R&PP Act*, in order to provide facilities and services such as schools, parks, and fire stations. The impacts of these acquisitions are considered in the discussion of past and present BLM actions.

The following assumptions underlie the cumulative analysis. Regardless of ownership, the amount of private lands that has been developed in the planning area resulted in the removal of these lands for other uses such as wildlife habitat, recreations areas, livestock grazing, and in many cases, mineral exploration and development. Within the planning area as a whole, this acreage is not significant (approximately 252,000 acres of the planning area). In the Las Vegas Valley, however, the impacts from private land development have been significant (approximately 90,000 acres) The 90,000 developed represent approximately 38 percent of the private lands in the Las Vegas Valley.

The State of Nevada functions primarily in the same role as local governments and owns an insignificant amount of real property in the planning area. Spring Mountain State Park, Valley of Fire State Park, and Floyd Lamb State Park (a total of approximately 42,046 acres or 1 percent of the planning area) constitute the real property of the State of Nevada in the SRA.

Reasonably Foreseeable Future Actions

BLM Actions - The preceding discussion of the RMP alternatives identified a number of different areas to be managed for certain uses; acreage figures identified for these areas will be utilized in this analysis to assess cumulative impacts. Reasonably foreseeable future actions (RFFAs) related to specific on-the-ground activities have been identified. In some cases, a full development scenario has been prepared. Those RFFAs anticipated to result from BLM-initiated and authorized actions are described by resource or program as indicated below.

Air, Soil, and Water Resource Management

No RFFAs are expected to occur in the planning area, as a result of BLM management of air resources. Such management will continue to emphasize land use restrictions and project or site-specific constraints and mitigation.

Vegetation Management

No RFFAs are expected to occur in the planning area as a result of BLM management of vegetation. Management of this resource will continue to emphasize land use restrictions and project or site-specific constraints and mitigation.

Riparian Management

The enhancement/improvement of five springs per year at 1/2 acre per spring is projected to occur over the first 5 years of the RMP, for a total of 25 springs and 13 acres. A total of 100 springs and 50 acres are projected to be improved over the life of the plan. Approximately 100 acres of *Tamarix* (salt cedar) will be removed during this time period. Approximately 40 miles of fence will be constructed around springs.

Visual Resource Management

Approved Visual Resource Management classifications will be used to establish management standards for the design and development of future projects and the rehabilitation of existing projects in the planning area.

Fish and Wildlife Habitat Management

Specific projects needed to improve the management of fish and wildlife habitat in the planning area were identified during the development of the RMP and are shown in Table 4-1.

Forestry Management

Based on past use levels, 35 cords of mesquite firewood are projected to be sold on an annual basis, for a total of 700 cords over the life of the RMP.

Livestock Grazing Management

Allotment evaluations were used to identify range improvement projects anticipated to be constructed during the 20 year span of the RMP; these are shown in Table 4-2. Livestock grazing would continue to be authorized on 11 allotments.

Wild Horses and Burro Management

Four HMAs would have zero populations, four would be managed at appropriate AML.

Cultural Resource Management

No RFFAs are expected to occur in the planning area as a result of BLM management of cultural resources. Management of this resource will continue to emphasize land use restrictions and project or site-specific constraints and mitigation.

Lands Management

Disposals

Disposal of public lands will continue throughout the resource area through sale (including the Santini-Burton Act), exchange, color-of-title, or R&PP patent, depending on public interest and community need. Reasonably Foreseeable Future Actions (RFFAs) for the next 20 years are as follows:

Las Vegas Valley- 20,000 acres; Laughlin- 2,360 acres; Mesquite- 2,600 acres

Legislative Disposals:

Eldorado Valley Act Lands- 107,000 acres; Apex- 16,000 acres

Table 4-1. Proposed fish and wildlife habitat improvements.

Type of Improvement	#/Units	Miles	Estimated Acres
Big game water developments	10 - 15	--	2-5
Spring developments	25 - 45	--	6 - 22
Riparian/aquatic habitat Improvements	5 - 10	--	300
Tortoise proof fencing	--	200 - 300	--
TOTAL	**40 - 70**	**200 - 300**	**308- 327**

Table 4.2. Proposed range improvements.

Type of Improvement	#/Units	Miles	Estimated Acres
Fences	--	0-56	0-42
Cattleguards	0 -5	--	--
Corrals	3	--	0-2
Pipeline	--	4 - 10	24 - 104
Water Hauls	2 - 5	--	.5 - 3
Troughs	6 - 18	--	--
Reservoirs	--	--	--
Wells	4 - 8	--	4 - 8
Springs (Rework)	8 - 30	--	4 - 15
TOTAL	**23 -69**	**4 - 66**	**32.5-174**

Leases

Airport

Airport leasing will continue on those lands within a 2 mile radius of Jean and Searchlight, and within a 3 mile radius of Pahrump. Leases will be authorized under the authority of the Act of May 24, 1928, as amended, at less than fair market value, to meet the need for public airport facilities in small and growing communities that could not otherwise be afforded.

Based on previous years and the current show of interest in specific areas for public airport purposes by Nye and Clark counties, RFFAs for the next 20 years will total approximately 6 leases issued for a total of approximately 2,000 acres.

Conveyances

FLPMA Section 209

Before the enactment of FLPMA in 1976, there were no provisions for obtaining the subsurface estate of no known value with the sale of the surface estate. During the past decade, the sale of the subsurface estate of no known value with the surface estate has been made a condition of the sale. This action has established an awareness by the public of the probable availability of the subsurface; more people are submitting applications for conveyance of the mineral estate on public sale parcels purchased after 1976. Issuance of Section 209 conveyances will be for the mineral estate of no known value under the following conditions: 1) if Federal ownership precludes appropriate non-mineral development, and 2) such development is a more beneficial use of the land than the mineral development. Based on previous years and the fact that both the surface and subsurface estates are now disposed of simultaneously, there will probably be a gradual decline in this type of conveyance.

Withdrawals

This alternative identifies specific withdrawals to be completed on public lands within the resource area. Although other Federal agencies have not identified future withdrawals, based on historical use, it is possible that they may request lands to be withdrawn for specific projects at a later date.

Based on previous years, some lands already under withdrawal are in the process of being relinquished back to the BLM. Given the protective withdrawals that will be designated by this alternative, the possibility exists for a decrease in the number of withdrawals requested.

Natural Areas Management

No RFFAs are expected to occur in the planning area as a result of BLM management of natural areas. Management of this resource will continue to emphasize land use restrictions and project or site-specific constraints and mitigation.

Recreation Management

It is anticipated that between 680 and 820 competitive OHV events will be authorized on 1,200 - 1,520 miles of existing courses during the life of the RMP. An additional 300 competitive events will be authorized within the Nellis Dunes SRMA; the entire area is anticipated to be impacted during the life of the RMP.

Wild and Scenic Rivers Management

The Virgin River will be evaluated for eligibility as a Recreational River. Future management of the river will depend on the outcome of that inventory and evaluation.

Rights-of-Way Management

Linear

Requests for linear rights-of-way across public lands within the Stateline Resource Area will continue in conjunction with private lands development. Rights-of-way will include access roads and highways, water and power utility lines, sewage lines and flood control channels. Most rights-of-way will occur within the Las Vegas Valley (80 percent), Laughlin (4 percent), Pahrump (7 percent), Mesquite (3 percent), Moapa (3 percent) and Searchlight (3 percent). RFFAs for the next 20 years will total approximately 940.

Areal

Requests for areal (nonlinear) rights-of-way on public lands within the Stateline Resource Area will continue with population growth and the need for co-facilities for linear rights-of-way. Rights-of-way will include communication sites, flood control basins, water and power utility substations, well sites and sewage ponds. Most rights-of-way will occur within the Las Vegas Valley (80 percent), Laughlin (4 percent), Pahrump (7 percent), Mesquite (3 percent), Moapa (3 percent) and Searchlight (3 percent). RFFAs for the next 20 years will total approximately 440.

Linear and Areal Combined

All requests for rights-of-way on or across public lands are not strictly linear or areal. Some rights-of-way are a combination of both types. Examples include flood water detention basins and related flood control channels; electric power generation stations and related transmission lines; water wells and related water distribution lines; and communication sites and related access roads. Most rights-of-way will be within the Las Vegas Valley (80 percent), Laughlin (4 percent), Pahrump (7 percent), Mesquite (3 percent), Moapa (3 percent), and Searchlight (3 percent). RFFAs for the next 20 years will total approximately 40.

Material Sites

Material site rights-of-way are addressed in the RFFAs for minerals.

Wilderness Management

Congress is anticipated to designate some wilderness within the planning area. Wilderness Management Plans will be developed and implemented for those areas designated. Wilderness Study Areas not designated by Congress will be released from management under IMP and will be managed according to direction provided in the Approved RMP.

Minerals Management

Reasonably foreseeable future actions resulting from BLM management of minerals are described in detail in the following scenarios:

Categories of Federally Owned Minerals

Federally owned minerals in the public domain are in one of the following categories depending on the kind of mineral:

Locatable Minerals (disposal is nondiscretionary)

1. Uncommon varieties of sand, gravel, stone, pumice, pumicite, cinders, and exceptional clay.

2. All "valuable mineral deposits" are locatable under the *Mining Law* of 1872, except those specifically excluded below.

Leasable Minerals (disposal is discretionary)

1. All minerals on acquired lands, except saleable minerals.
2. All minerals on the Outer Continental Shelf.
3. Geothermal resources and associated by-products.
4. Coal, phosphate, oil, and gas.
5. Chlorides, sulfates, carbonates, borates, silicates, and nitrates of sodium and potassium.
6. Sulphur in the states of Louisiana and New Mexico.
7. Oil shale, native asphalt, solid and semisolid bitumen, and bituminous rock, including oil impregnated rock or sands from which oil is recoverable only by special treatment after the deposit is mined or quarried.

Saleable Minerals (disposal is discretionary)

1. Petrified wood and common varieties of sand, gravel, stone, pumice, pumicite, cinders, and clay.
2. All minerals not defined as locatable or leasable.

Leasable Minerals

The *Mineral Leasing Act* of February 25, 1920, as amended (41 Stat. 437; 30 U.S.C. 181 et seq.), the *Acquired Lands Act* of August 7, 1947 (61 Stat. 913; 30 U.S.C. 351-359), the *Geothermal Steam Act* of December 24, 1970 (84 Stat. 1566; 30 U.S.C. 1001-1025), and 43 CFR 3100 through 3599 provide the legal and regulatory framework for issuance and management of mineral leases. These regulations apply where public interest exists for the development of oil, gas, geothermal, coal, and nonenergy leasable mineral resources. Stipulations are attached to leases and permits in order to assure protection of nonmineral resources that are susceptible to impacts resulting from the exploration and development of leasable mineral resources.

Fluid Leasable Minerals

To formulate scenarios, a generic "Oil Fields" will be developed in order to understand the potential impacts to Federal lands. The model will provide a range of projected disturbances and an array of probable land uses. In reality, disturbances would vary from oil field to oil field.

Background

The entire planning unit is located within or adjacent to the geologic overthrust belt. This belt extends through the mountain areas of the North American continent from Alaska to Central America. The belt passes through Wyoming, Utah and Nevada and has been the subject of major exploration efforts leading to oil and/or gas production in Wyoming and Utah. While located within the overthrust belt, oil production in Nevada is technically considered to be producing from a non-typical (i.e. non-overthrust) geologic structure.

In southern Nevada, the geology of the belt is extremely complex having been folded, fractured, faulted, thrust and overthrust many times through geologic history. Sedimentary rocks that make up the overthrust belt are also overlain and interbedded with igneous rock. Sediments up to 30,000 feet thick make this the largest frontier exploration area in the contiguous 48 States.

Considerable difference of professional opinion exists as to petroleum potential. USGS Circular 902-H, Petroleum Potential of Wilderness Lands in Nevada, concluded that the potential for oil is low in the

planning unit. USGS Open File Report 88-450 also discusses the relatively low geologic petroleum potential of southern Nevada. Proponents of further exploration in the belt cite as evidence the discovery of oil in Railroad Valley in central Nevada, including one well originally tested at 8,000 barrels of oil per day and currently producing 1,400 barrels per day.

Exploration

The first exploration well to have been drilled in Clark County was completed in 1929 near Arden, 15 miles southwest of Las Vegas. An area near Mesquite in the northeastern part of the county was touted as a prospective oil area but no wells are known to have been drilled in Nevada as a result of the promotion.

Some sporadic drilling was done in the 1940s, but the more serious efforts began in 1950 when exploration throughout Nevada increased significantly. Although a number of wells have reported oil shows, the lack of a discovery and the general decrease in Nevada drilling in the late 1960s and early 1970s resulted in few wells being drilled in Clark County until the early 1980s. Some of these recent wells were drilled to test the possibility

of "overthrust belt" oil fields like those in western Wyoming and northeastern Utah. The two most recent wells were drilled in 1992 in Nye county. Both of these wells were dry and were abandoned.

The deepest well drilled in Nevada to date is in Clark County on Mormon Mesa. In 1980, Mobil Oil Corporation drilled the Virgin River U.S.A. No. 1-A to a depth of 19,562 feet. It was an unsuccessful overthrust test. Currently, there are 53 oil and gas leases involving 70,901.47 acres in the SRA. No new leases are being issued pending finalization of the RMP.

Geophysical Data Acquisition

Acquisition of seismic data will continue in the future. Lines will be run to obtain additional data in the vicinity of previous wells and in outlying areas. It is estimated that approximately ten miles of seismic lines will be run each year. The best available technique will be used when completing these surveys and could be either energy or non-energy type studies. Energy type studies include vibration, above ground shot, shallow hole shot and deep hole shot methods. Non-energy type studies could include magnetic declination surveys and the use of remote sensing techniques. Vibration and non-energy type studies generally cause negligible surface disturbance while the use of explosives will cause some surface disturbance.

Seismic studies conducted by the petroleum industry usually consist of sending and receiving sound signals through the earth. Subsurface rock layers transmit variable velocities to the surface which are portrayed on graphs and then interpreted by geophysicists. The signals are generated by surface (shallow hole) dynamite blasts, deep hole (150+ feet) dynamite blasts or vibroseis machines. The vibroseis process involves dropping a heavy weight on the surface of the earth and recording the shock waves. It requires surface access by heavy duty vehicles. A more detailed description of all phases of oil and gas exploration and development is contained in Appendix A.

Seismic evaluation in the valleys in southern Nevada is difficult due to up to 10,000 feet of alluvial fill and the great depth of sediments to penetrate. The alluvial material absorbs, deflects and distorts signals passing through the material. New technology is available that helps clarify and interpret the distorted signal. Probable exploration would consist of 150 feet deep dynamite shots on the mountains and across the valleys. Depending on the structures being studied, the seismic line could be as short as several miles or as long as 40 to 60 miles. Seismic testing in WSAs on mountainous terrain would consist of helicopter operations to drill the blast holes. Blast holes in the valleys would be placed by low ground pressure all-

terrain vehicles or would use existing roads and trails. Helicopter operations over the entire seismic line may also be used.

If a stratigraphic test well is drilled, it would be strategically placed to tie seismic information together with the drill data. If results of the seismic information, geophysical evaluations, and stratigraphic test well so indicate, an exploration well would be drilled. Based on oil and gas field location in the Wyoming and Utah portions of the overthrust belt, exploration wells are likely to be in the mountainous areas of WSAs. This will require full service roads through mountain terrain unless they could be at the end of present cherry stem road or trails which penetrate some of the WSAs.

Projecting for the 20 year life of the RMP, it is estimated that there will be a gradual increase in exploration. This will depend on success of exploration to the north where discovery has already been made. The high risk factor, due to the complex and deep structures, multi-million dollar wells, and the low current and projected value of oil are all factors influencing a relatively low exploration program.

Within the WSAs, it is expected that two deep exploration wells will be drilled. The Muddy Mountains, Arrow Canyon, and Mount Stirling WSAs, in that order, are expected to undergo additional seismic testing. Only one major new access road is expected to be built to drill one exploratory well or stratigraphic test well. The other exploratory drill site is expected to be on or near current access roads or trails.

Oil and Gas Development

An economic development field size has not been formally established. Hypothetically, a shallow 100 barrel per day well with a 100,000 recoverable barrel field might pay back drilling and investment costs in a few years. Hypothetically, a large field at over 10,000 feet would require many millions of barrels to be economic.

Development wells would follow existing BLM and state regulations and bonding. Production facilities (well heads) would be low profile utilizing natural colors and occupying less than 100 square feet. Gathering lines would extend from the individual wells to a common collection point consisting of storage tanks and loading facilities for truck transport. Gathering lines would be either buried or on the surface. If the field is large enough, a pipeline would be built to the nearest rail line or refinery.

A large field in southern Nevada is expected to consist of 18 to 20 wells and could extend 6 to 10 miles long and 3 miles wide. The project life of the field is 35 years, at which time all facilities would be removed and the sites rehabilitated. It is anticipated that such a field would overlap both mountainous terrain, such as in the WSAs, and valley bottoms and benches outside the WSAs.

Considerable design flexibility can be incorporated into the field development to mitigate environmental impacts. For instance, while Nevada state law specifies one development per square mile, it may make sense to drill multiple wells from one site such as is doné in the Prudhoe and Kaparuk fields in Alaska. These wells use slant drilling techniques with several wells per pad. Federal well spacing requirements are one well per 40 acres for wells 5,000 feet or less in depth and one well per 160 acres for wells greater than 5,000 feet in depth.

Beginning geophysical surveys may cross the entire resource area in a very broad brush fashion. These surveys will attempt to piece together the overall regional geology (see Appendix B). Once geologic structures of interest are located, surveys of specific areas will be intense and may be repeated frequently. There will be an estimated 50 to 150 miles of line surveyed per year. Each year there will be up to 200 acres disturbed from geophysical exploration. There will be 100 percent reclamation completed on these lines by the year's end. This reclamation will be entirely from efforts taken by the geophysical company.

Based on past drill history, most of the drilling will occur outside of WSAs. It is estimated that two wells will be drilled in the geographic areas currently known as WSAs. Historically, oil discoveries in Nevada have been exclusively in the high potential valley bottoms, none of which are identified in Stateline RA. However, new theories have recently outlined a possible overthrust "play" in some of the lower potential mountainous regions.

The average size for a producing oil and gas field in Nevada is 640 acres. There will be 40 acre spacing for wells 5,000 feet or less in depth and 160 acre spacing for wells greater than 5,000 feet in depth. Normally, drilling depths are greater than 5,000 feet; therefore, most of the well spacing can be expected to be 160 acres.

No more than three drilling or workover rigs will be in operation in a field at the same time. Limited reclamation work would occur until the producing field is abandoned. No producing fields will be abandoned during the land use planning period.

The risk factors involved would usually limit drilling to depths of 6,000 feet, although some operators would speculate that larger reservoirs would be encountered at greater depths (10,000 to 15,000 feet). Production rates of each field would range from negligible amounts (10 barrels of oil per day [BOPD]) to extremely prolific (6,300 BOPD). The production life of a field would last from 18 months to 35 years. The risk, due to the complexity of the geology, depth, high cost of drilling 20,000 feet, restoration and development costs in rugged terrain, and continued low price for oil are very depressant to active deep depth drilling unless detailed geological information is available in advance.

Future Exploration Activity

To date, 67 wildcat wells have been drilled in the Stateline Resource Area without any discovery. It is anticipated that two stratigraphic wells and 40 wildcat wells will be drilled in the next 20 years. It is also anticipated that these wells will lead to the discovery of two oil fields. This is contrary to the current industry standard that for every 20 wildcat wells drilled, one well will have a discovery.

Drill pads will encompass two acres and will be constructed on a gravel base that is 2½ feet deep. Two miles of 20 feet wide access road will be required for each well and will be constructed on a gravel base that is two feet deep. Gravel pits will not be more than 10 feet deep and all gravel will be obtained locally.

Disturbance	Total Acres
Well pads	84
Gravel pits	62
Roads	407
TOTAL	553

Future Production Activity

Oil Fields -- minor and major

Four to 20 wells will be drilled in each of two oil fields (one minor and one major). Each field will contain three producing wells, zero to two injection wells, and two to 17 plugged and abandoned wells. No additional surface disturbance will be required as tank batteries will be placed on existing drill pads. Each field will be located one to six miles from a major existing road and will require a 50 feet wide access road surfaced with three feet of gravel. Additionally, four to five miles of 30 foot wide service road will be required and surfaced with two feet of gravel. Drill pads will not exceed two acres and will be surfaced with two and one-half feet of gravel. One to six miles of pipeline laid on a 15 feet wide disturbed area will

be required. Gravel will be obtained locally from pits that will not exceed 10 feet in depth. An oil refinery disturbing 20 acres will be constructed in conjunction with the major oil field. A 30 miles long pipeline disturbing 55 acres of surface will be built from the new oil fields to the proposed refinery. The projected disturbance is as follows:

Disturbance	Total Acres
Well pads	8 - 40
Service roads	15 - 18
Access roads	6 - 30
Pipelines	2 - 66
Refinery	0 - 20
Gravel pits	10 - 79
TOTAL	41 - 253

It is anticipated that two oil fields may be discovered within the resource area during the 20 years anticipated life of this plan. These fields are hypothesized to be a small field (four wells) within the Arrow Canyon WSA and a larger field (20 wells) within both the Muddy Mountains WSA and adjacent desert tortoise habitat.

Drilling trends may fluctuate greatly, with no drilling occurring in as many as five consecutive years to half of the wells being drilled in a ten year period. Each new discovery will foster an increase in drilling activity which may last for two to three years.

Acreage disturbed would range from a low of 41 acres to a high of 253 acres. It is important to note that reclamation requirements apply to all of these acres. These estimates do not account for reclamation.

Summary of Disturbance

Disturbance	Total Acres
Geophysical exploration	4,000
Oil and gas exploration	553
Well pads	80
Access roads	36
Service roads	33
Gravel pits	89
Refinery	20
Oil pipelines	68
TOTAL	4,879

Non-Energy Leasable Minerals

The exploration and mining scenarios for locatable minerals will be used to explore the potential impacts of this resource.

Future Exploration Activity

During the proposed 20 year life of this plan, one prospecting permit will be received in the White Basin. It will be a 2 year project to drill and evaluate the potential for these minerals. This permit will result in lease issuance for sodium and will be developed.

Future Mining Activity

Three large mines will be developed. Two of the three will be in previous WSAs; acreage disturbed would range from a low of 335 acres to a high of 3,020 acres.

Locatable Minerals

Exploration for and development of locatable mineral resources is provided for by the *Mining Law* of May 10, 1872, as amended (17 Stat. 91; 30 U.S.C. 21 et seq.). 43 CFR 3802 and 3809 provide protection to nonmineral resources, provide for reclamation of disturbed areas, and provide for mineral exploration and development, while assuring that activities are conducted in a manner that prevents unnecessary or undue degradation.

Scenarios

Exploration -- mining notice

Roads, drill pads, trenches, and cut and fill roads could be constructed. Average disturbance will be 3 acres per year per notice. An average drill program will range from one to 15 holes per year. A typical pad will be 20 feet wide by 40 feet long. Holes will often be drilled in roads with the latter serving as the drill pad. Cumulative unreclaimed disturbance is not allowed to exceed 5 acres in any individual project area.

Mining Operation -- mining notice

The miner can be pursuing a placer deposit or a lode deposit. A front end loader and a bulldozer may be utilized. Typically, the miner is following high grade mineralization that requires minimal processing facilities. Average disturbance ranges from two to four acres per year. Cumulative unreclaimed disturbance is not allowed to exceed 5 acres in any individual project area.

Exploration -- Plan of Operations

The mining operator will disturb 5 to 10 acres of land per year. These projects do not normally last more than 2 to 5 years. Roads, trenches, and drill pads will be the predominant surface disturbances. An average drill program will range from 15 to 30 holes per year. Up to 200 holes may be drilled in the project area. Closer spacing of holes and more intense programs are normally associated with the defining of a mineral resource. These programs normally cover a larger area than is covered by a mining notice. It is possible that some of these programs will start under a mining notice and then change to a plan of operations when they exceed the surface disturbance threshold of 5 acres.

Small Enterprise -- Plan of Operations

A small scale operator will pursue a working mine. The small scale operator may be mining a high grade deposit, old tailings, or a deposit which is too small for the larger operators. This operation could be the mining of building stone, industrial minerals, precious metals, or gems. The operators will attempt to operate within favorable economic windows with little capital investment and low operating costs. This operation may employ one to five people.

Small to Moderate Mine -- Plan of Operations

This operation could be mining industrial minerals, base metals, precious metals, or gems. It could be an open pit gold heap leach operation utilizing a leachate such as cyanide. This mine would have an open pit

to pursue the desired commodity. A processing or mill facility will be required. A heap leach pad will only be used for the gold operation. Typically, gold deposits will be low grade with a cut-off grade of 0.025 ounces of gold per ton. This operation could have grades of 0.05 to 0.1 ounces of gold per ton, but the high grade ore would be the exception. In place gold reserves will be in the neighborhood of 50,000 to 100,000 total ounces of gold. Normally, this operation will employ 15 to 40 people and have a mine life of 3 to 6 years.

Large Mine -- Plan of Operations

This operation could be mining industrial minerals, base metals, precious metals, or gems. This mine would have one or more open pits to pursue the desired commodity. A processing or mill facility will be required. A heap leach pad will only be used for gold operations. The size of the open pit, type of processing facility, and method of tailings disposal will be dependent upon the commodity being mined. A molybdenum/copper circuit will require a larger tailings disposal area than a gold circuit. Normally, this operation will employ 300 to 600 people and have a mine life of 7 years or more. More employees are likely during construction phase of the operation. Water wells, power lines, parking facilities, and other ancillary facilities will be required in advance of production. Disturbance is going to be greatly influenced by terrain and engineering ability to use existing topographic features.

Expansion -- Plan of Operations

This will not be a wholly new mining venture. This model will take place adjacent to an existing operation. It will be an expansion of an existing mine to take advantage of a new ore deposit, new technology, changing economics, or changing company philosophy. A mine can have more than one expansion during its life. This acreage can be used for a new open pit, pit expansion, leach pad, facilities, tailings expansion, waste rock expansion, etc. This model is projected to disturb 120 to 360 acres.

Underground Mine -- Plan of Operations

In this operation, the operator can be mining base metals, precious metals, or gems. This will require a higher grade of ore than is needed for an open pit mine. While an underground mine requires less surface acres than an open pit mine, the costs to remove a ton of material are much higher. Indirect impacts of subsidence and acid water can result from this operation. The mine and processing facilities will often be separated to take advantage of terrain. Typically, an underground mine will be very capital intensive and require extensive development work in advance of production. This operation will normally employ 50 to 175 people and have a mine life of 8 to 15 years.

Future Exploration Activity

Exploration is going to continue across the Stateline Resource Area. Drilling programs are attempting to accomplish one or both of the following goals:

1. Complete assessment work in order to hold the claims pursuant to the *Mining Law* of 1872, as amended.
2. Evaluate a mineralized area as a potential mine.

Work during this foreseeable future will be done across the entire resource area in mineral potential zones rated as low, moderate, and high. Programs will be concentrated within mining districts, around existing mines, and around new discoveries. It is projected that 80 new explorations will take place each year along with 20 amendments to existing mining notices. It is projected that 30 new mining operations will take place each year along with five amendments to existing plans of operations. During a year, exploration pursuant to a mining notice will disturb 300 acres while exploration pursuant to plans of

operations will disturb between 175 and 350 acres. This exploration will be outside of existing mine project areas. This will total between 475 and 650 acres of new disturbance each year.

Operations pursuant to a mining notice will stay constant. Currently, there are 20 such operations within the resource area. These operations will relocate during the life of a plan of operations, but the acreage will remain constant. This will total between 40 and 80 acres of existing disturbance each year. Generally, these operators are going to be working in historic mining districts.

Future Mining Activity

Current Disturbance

Casefile types and acres disturbed from fiscal year 1981 through fiscal year 1990 is summarized below:

Type	Active	Inactive	Total
Non-Wilderness Plans	39	2	101
Wilderness Plans	3	4	19
Notices	125	0	416
TOTAL	167	6	536

From 1981 through 1990, the disturbance proposed to be done under mining notices was 1,248 acres. The disturbance proposed to be done under plans of operation was 4,440 acres. The disturbance proposed to be done under both notices and plans was 5,688 acres. Not all of this acreage was disturbed. In order to close a mining notice casefile, all disturbed areas must be reclaimed to the standard described in 43 CFR 3809.1-3(d). In order to close a plan of operations casefile, all disturbed areas must be reclaimed to the standard described in the approved plan.

Reclaimed mining notices equal 873 acres. Reclaimed plans of operation equal 2,664 acres. Total reclamation of both notices and plans equals 3,537 acres. Percentages of the disturbances caused by mining operations which have been reclaimed are as follows:

Notices -- 873 acres ÷ 1,248 acres = 69.95 percent
Plans -- 2,664 acres ÷ 4,440 acres = 60.00 percent
Total -- 3,537 acres ÷ 5,688 acres = 62.18 percent

Unreclaimed mining notices equal 375 acres. Unreclaimed plans of operation equal 1,776 acres. Total unreclaimed areas of both notices and plans equals 2,151 acres.

Mineral Materials

The *Materials Act* of July 31, 1947, as amended (61 Stat. 681; 30 U.S.C. 601 et seq.), and 43 CFR 3600 through 3622 provide for the regulation and disposal of mineral materials. Disposal is administered on a case by case basis. Saleable minerals are sold at fair market values. Free use permits are issued to Federal and State agencies, local communities, and nonprofit groups as the need arises.

Modifications of the exploration and mining scenarios for locatable minerals will be used to explore the potential impacts of this resource. These scenarios include all reasonably foreseeable sand and gravel development activities whether these materials are presently being mined as a saleable mineral, locatable mineral, leasable mineral, or material site right-of-way.

Mineral materials extraction will take place as close to the project as possible. Areas that will require materials include the cities of Boulder City, Henderson, Las Vegas, Mesquite, and North Las Vegas and the

towns of Amargosa Valley, Arden, Blue Diamond, Bunkerville, Cal-Nev-Ari, East Las Vegas, Glendale, Goodsprings, Green Valley, Indian Springs, Jean, Lathrop Wells, Laughlin, Logandale, Moapa, Nelson, Overton, Pahrump, Paradise, Sandy Valley, Searchlight, Sloan, Spring Valley, Sunrise Manor, and Winchester, as well as the Apex industrial site, Nellis Air Force Base, and Yucca Mountain nuclear repository site.

The resource area contains numerous major paved road systems, as well as the extensive road network within the Las Vegas Valley, that will require maintenance, rebuilding, and continued sources of materials. Landscape rock will be mined from the Arden and Flagstone quarries.

Scenario Models

Sampling and testing activities

The exploration activities will disturb 5 to 10 acres of land per year. These activities do not normally last more than one year. Roads, trenches, and drill holes will be the predominant surface disturbances. An average drill program will range from 15 to 30 holes per year. Up to 200 holes may be drilled in the project area. Closer spacing of holes and more intense programs are normally associated with the defining of a sand and gravel deposit. These activities normally cover a larger area than is covered by a material site right-of-way or free use permit. All sampling and testing for material site rights-of-way is authorized under 43 CFR 23, for free use permits 43 CFR 3602. Ultimately, federally aided highway projects may be granted material site rights-of-way under 43 CFR 2800 while all other projects may be granted free use permits under 43 CFR 3620.

Community pit operations

The operator may be pursuing a small sand and gravel deposit. A front end loader and a bulldozer may be utilized. Typically, the operator will extract material that requires minimal processing facilities. Average disturbance ranges from 2-4 acres per year.

Small size pit operations

A small scale operator will pursue a working open pit mine. The small scale operator may be mining a high grade deposit or a deposit which is too small for the larger operators. This operation could be the mining of sand and gravel, building stone, or other common variety minerals. The operators will attempt to operate within favorable economic windows with little capital investment and low operating costs. This operation may employ one to five people.

Moderate size pit operations

This operation could be mining sand and gravel, building stone, or other common variety minerals. This mine will have an open pit to pursue the desired commodity. A processing facility will be required. Normally, this operation will employ 15 to 40 people and have a mine life of three to six years.

Large size pit operations

This operation could be mining sand and gravel, building stone, and other common variety minerals. This mine would have one or more open pits to pursue the desired commodity. A processing or mill facility will be required. The size of the open pit, type of processing facility, and method of overburden disposal will be dependent upon the commodity being mined. Normally, this operation will employ 50 to 300 people and have a mine life of 7 years or more. More employees are likely during construction phases of the operation. Water wells, power lines, parking facilities, and other ancillary facilities will be required in

advance of production. Disturbance is going to be greatly influenced by terrain and the engineering ability to use the existing topographic features. The projected disturbance is as follows:

Future Exploration Activity

During the proposed 20 years life of this plan, 60 requests for letters of authorization to conduct sampling and testing activities will be received, all for road projects by the Nevada Department of Transportation. All 60 of these letters of authorization to conduct sampling and testing activities are projected to be for sand and gravel. It is projected that 30 of these requests for letters of authorization will result in approval to mine sand and gravel, 25 material site rights-of-way and five free use permits, and that all 30 sand and gravel pits will be developed.

Exploration activities pursuant to letters of authorization to conduct sampling and testing will disturb between 15 and 30 acres of new disturbance each year. This exploration will be outside of existing sand and gravel mining areas.

Future Mining Activity

Twenty community pit operations occur within the resource area. It is expected that there will be an average of 30 operations per year over the life of the plan. Generally, the smallest operators are going to be working in community pits. This will total between 7.5 and 60 acres [(30 operators)(¼ acre to 2 acres)] of new disturbance each year. These operations will relocate during the life of the plan as operators move and community pits are opened and closed.

Small operations, totaling 25, currently operate within the resource area. It is expected that there will be an average of 30 per year over the life of the plan. This will total between 60 and 120 acres of new disturbance each year. These operations will relocate during the life of the plan as operators move.

Three moderate operations occur within the resource area. It is expected that there will be an average of five per year over the life of the plan. This will total between 20 and 80 acres of new disturbance each year. These operations will relocate during the life of the plan as operators move.

Two large operations currently are found within the resource area. It is expected that there will be an average of three per year over the life of the plan. This will total between 48 and 192 acres of new disturbance each year. These operations will relocate during the life of the plan as operators move.

These actions will be mainly projected in moderate or high potential zones, although many factors could lead to development in low potential areas. Based upon the proposed 20 year life of the RMP, total projections are 1,420 operations.

ALTERNATIVE E- CUMULATIVE IMPACTS

Air Resource Management

The discussion of cumulative impacts to air resources will be restricted to the Las Vegas air quality Non-Attainment Area (see Map 3-1). Air resources within the Non-Attainment Area have been degraded by pollutant levels, primarily particulates and carbon monoxide (CO), in excess of ambient air quality standards established by EPA, State of Nevada, and Clark County Health District. Air quality in the remainder of the planning area is acceptable, meaning that pollutant levels are less than or equal to established standards on a continuous basis. Reasonably foreseeable future actions, together with past and present actions, are not expected to result in unacceptable air quality in any areas outside of the existing Non-Attainment Area.

Under the Clark County MFP, 109,000 acres of public lands (including the Santini-Burton Lands) within the Las Vegas Valley Non-Attainment Area were designated as being available for disposal. Approximately 6,000 acres of these lands have been sold during the last 8 years (11 years for the Santini-Burton lands). Budget and workforce considerations, public demand, economic conditions, changing resource values (i.e the listing of the desert tortoise), and coordination with local governments are all factors in the disposal of public lands. The fact that public lands have been identified for disposal does not guarantee their eventual disposal and development, and this fact must be taken into consideration in the development of reasonably foreseeable future actions and assessment of impacts (15,000 to 40,000 acres anticipated to actually be disposed of during the life of the RMP). Other BLM actions contributing to the cumulative impact to air resources include development and maintenance of rights-of-ways, and mineral exploration and development.

For the purposes of this analysis, it is assumed that from 35,250 to 72,300 acres of private lands within the Las Vegas Valley will be developed during the life of the RMP. Within the Las Vegas Valley, impacts related to BLM-authorized or initiated actions, including public land disposal and subsequent development, construction and maintenance of rights-of-ways, and mineral exploration and development, are expected to total 25,000 acres during the life of the RMP. This would result in a total of from 60,250 to 187,300 acres of new development within the Las Vegas Valley during the life of the RMP. Estimates for particulate and carbon monoxide emissions due to land development activities are the same as those used in the *Clark County Regional Flood Control District EIS* (Clark County, 1991). Cumulative impacts from both private and public land development activities during the life of the RMP will result in additional particulate matter emissions ranging from 72,360 tons to 128,760 tons (based on 1.2 tons/acre/year). Although the cumulative total of particulate emissions is substantial, emissions would be spread out over a 20-year period and are short-term in duration. Once construction activities are completed, a given site generally does not continue to produce particulate emissions due to paving and landscaping; completion of surface construction should actually reduce background levels of fugitive dust. Future use of these developed lands will not result in any long-term increases in particulate emissions. These figures represent a worst-case scenario in that it assumes 100 percent disturbance for any given action. In practice, the actual acreage disturbed will be less than the acreage authorized (i.e. a 50-foot right-of-way is granted but the actual disturbance is only 30 feet wide).

Additional carbon monoxide (CO) emissions directly related to land development activities would range from 7,230 tons to 12,876 tons during the life of the plan (based on 0.12 tons/acre/year). Although the cumulative total is substantial, these emissions are short-term in duration and cease when construction activities are completed. Growth induced long-term increases in vehicular CO emissions related to the development of the acreage identified above would range from 45,688 to 80,475 tons per year. These estimates represent a worst-case scenario and assume that no technological advances will be made in reducing CO emissions from internal combustion engines. The assumption is also made that no additional legal or regulatory measures will be taken by Federal, state, or local governments to reduce CO emissions.

Water Resources Management

The discussion of the cumulative impacts to the water resource will be restricted to the Las Vegas Valley where rapid growth and development has resulted in a groundwater overdraft situation. In this area, Nevada's Colorado River water allocation is also being rapidly depleted.

Records indicate that approximately 64,550 acre feet of groundwater was extracted from the principal aquifer, far exceeding the estimated recharge/perennial yield of the Las Vegas Valley (Division of Water Resources 1989). In addition to groundwater withdrawals, the Valley used 243,281 acre feet of Nevada's allocation of Colorado River water. Current projections indicate that consumptive use within the Valley may reach its maximum allocation of the Colorado River water much sooner than anticipated. For the purposes of this analysis, it is assumed that from 35,250 to 72,300 acres of private lands within the Las Vegas Valley would be developed during the life of the RMP. Within the Las Vegas Valley, actual *Santini-Burton* sales, FLPMA Section 103 sales, R&PP sales and leases, and exchanges are expected to total 20,000 acres during this same period. These actions would have indirect impacts on the water resource by encouraging growth within the Valley and increasing demand on an already taxed water supply.

To date, approximately 90,000 acres of private land have already been developed within the Las Vegas Valley. Assuming that nearly all of the present water usage (307,831 acre feet) from both groundwater sources and the Colorado River is consumed by these land holdings, the per acre annual water usage in the Valley is equal to approximately 3.7 acre feet. If all of the proposed acres identified for disposal are indeed transferred and developed and all the private acres developed, approximately 204,425 to 341,510 acre feet of additional water consumption could be anticipated. The adverse implications of the increased water consumption could be moderated by actions taken by the entities within the Valley charged with management of the water situation. The Las Vegas Valley Water District has initiated an exploration and development program designed to increase current water supplies over the next 15 to 20 years. Mandatory conservation measures may be introduced to better utilize currently available water supplies.

Desert Tortoise Habitat Management

Cumulative impacts to desert tortoise habitat will occur over the entire planning area, although the intensity of those impacts will vary considerably from location to location. Within the Las Vegas Valley, cumulative impacts to desert tortoise will be significant, but this assessment is tempered by the fact that it is unlikely that a long-term viable breeding population could be sustained in the Valley given the projected growth of Las Vegas over the life of the RMP. Assuming that RFFAs occur, approximately 40,000 acres of low density tortoise habitat will be lost over the life of the RMP. The majority of this habitat would be located in the Las Vegas Valley. A loss of this magnitude would normally be considered significant, but due to the lack of large "islands" of habitat in the Las Vegas Valley that are capable of sustaining minimum viable populations levels, this loss of habitat is not expected to jeopardize the continued existence of the desert tortoise in Nevada.

A total of approximately 798,000 acres would be designated as ACECs to be managed primarily for the benefit of desert tortoise. Section 7 consultation will still be required on all Federal actions which may affect a threatened or endangered species. Designation of critical habitat for desert tortoise or other species changes the threshold for jeopardy. Therefore, Federal actions proposed within ACECs/DWMAs or critical tortoise habitat are more likely to result in a jeopardy opinion. Mitigation measures are expected to be less stringent on projects located outside of ACECs/DWMAs and critical habitat. Proposed changes in livestock grazing, mineral exploration and development, OHV designations, and OHV racing would be reduce, but not eliminate, impacts to desert tortoise.

Impacts to desert tortoise due to mining, oil and gas leasing, and exploration would be reduced but not eliminated. The areas considered most important for tortoise recovery and supporting the highest density

tortoise populations will be protected by ACEC designation. In addition, changes in the mining regulations since the release of the Draft RMP have resulted in approximately a 50 percent reduction in the number of mining claims on file with the Bureau. This should result in a decrease in the number of notices filed annually.

Off-highway vehicle designations in ACECs/DWMAs would offer additional protection to desert tortoise from casual use. Competitive OHV racing would be prohibited in ACECs/DWMAs. The areas considered the most important for the recovery of the desert tortoise would be protected. Impacts would continue outside these areas.

Cultural Resources Management

Designation of nearly one million acres for Special Management Areas would continue to aid in the preservation of 2,100 significant sites, by restricting surface-disturbing activities. Approximately 845,000 acres of public lands would be available for livestock grazing and the construction of rangeland improvements, potentially impacting 1,700 eligible sites.

Minerals exploration and development within approximately 80 percent of the planning area would have the potential to affect 7,500 eligible sites, including the direct and purposeful mining of historic and prehistoric sites under the concept of exploration. Over 900,000 acres of ACECs and 512,000 acres of OHV closure require minerals actions to achieve compliance with the *National Historic Preservation Act.* While these restrictions limit untreated destruction of cultural values, the consumptive nature of mining operations would require the scientific removal of archeological data, thus causing irrevocable and irretrievable impacts to eligible cultural resources. Some cultural values would be at risk as a result of minerals activities conducted in some WSAs, under a Notice of Intent.

Lands Management

Alternative E identifies 111,000 acres of land that would have priority for sale or exchange. The RFFA suggests that 40,000 acres, including the 7,500 acre North Las Vegas land sale, as likely to be disposed of during the life of the plan. This would be in addition to the 107,000 acre Eldorado land sale, which is currently pending. The majority of land disposal, excluding the Eldorado sale, is expected to occur in the Las Vegas Valley, Apex, and at Laughlin and Mesquite.

Land disposal in the Las Vegas Valley is estimated to be a maximum of 20,000 acres. Impacts of the above disposals do not contribute significantly to the loss of natural resources, such as desert tortoise habitat. Disposal would add incrementally to the air pollution level in the Las Vegas Valley Non-Attainment Area, but not to a significant level. The disposal of 20,000 acres of federal land for development purposes within the Las Vegas hydrographic basin, would have a water demand estimated at 74,000 acre feet. This directly competes with and potentially depreciates other private land values or the federal lands could be depreciated in value if they are in last place for water behind private lands. This water would need to come from the Colorado River or other sources, since the ground water in the basin is overdrafted by a substantial amount. Based on the Las Vegas Valley Water Districts evaluation of the hydrographic basin, 90,000 acres of private developed property and 150,000 acres of undeveloped private property are contained in the basin. The undeveloped private property would increase to 187,000 acres (includes 16,000 acres at Apex) upon completion of the proposed land disposals in the Las Vegas Valley. The water demand to develop these lands is estimated at 691,000 acre feet, based on 3.7 acre feet per acre. Population estimates of 1,350,000 by the year 2014 (Clark County Dept. of Comprehensive Planning, 1994) would create a total water demand of approximately 344,000 acre feet(.403 conversion factor-Colorado River Commission, 1993).

Recreation Management

Cumulative impacts to recreation will occur throughout the planning area as a result of the management of critical tortoise habitat and the transfer of public lands through the *Eldorado Lands Act.* The critical habitat designation and management restrictions imposed under the *Desert Tortoise Recovery Plan* creates new restrictions for one additional area, the Nelson Hills. Due to the current high levels of use in Nelson Hills for both casual use and organized OHV activity, the loss of opportunities for these activities will cause negative impacts to recreationalists. Crowding, accelerated resource degradation, and user conflicts between OHV and non-OHV areas in SRA could be anticipated.

Transfer of public lands under the *Eldorado Lands Act* will remove from the public domain one of the most heavily used recreation areas in the Las Vegas area. Depending on future management of those lands, a loss of major OHV events, numerous other organized, permitted activities, and many casual use recreation opportunities could be lost. Population growth to nearly 1,500,000 people during the life of this plan would create millions of additional visitor days use on the public lands. As a consequence, increased user conflicts, overcrowding, and possible resource degradation could occur at other areas of SRA which currently do not receive intensive recreational use.

CHAPTER 5

CONSULTATION AND COORDINATION

CHAPTER 5

CONSULTATION AND COORDINATION

INTRODUCTION

This chapter summarizes the preparation, public participation, consultation, and coordination activities conducted for the Supplement to the *Draft Stateline Resource Management Plan/Draft Environmental Impact Statement*. In the course of preparing this Supplement, formal and informal efforts have been made to involve the public, a variety of special interest groups and organizations, other Federal agencies, and state and local governments in the planning process.

LIST OF PREPARERS

The Stateline RMP/EIS was prepared by specialists from the Stateline Resource Area and the Las Vegas District Office (Table 5-1). Planning, resource, and cartographic staff from the Nevada State Office provided technical reviews and support.

COORDINATION AND CONSULTATION

Section 7 of the *Endangered Species Act* requires BLM to consult with the U.S. Fish and Wildlife Service (USFWS) prior to the authorization and implementation of any project which may affect a Federally threatened or endangered plant or animal species (or their habitat). The Draft RMP/EIS was reviewed by the USFWS; however, formal Section 7 consultation was not initiated. Since the release of the Draft RMP/EIS, the USFWS has issued a *Draft Recovery Plan for Desert Tortoise (Mojave Population)* (1993) and a *Draft Critical Habitat Designation* for this area. Direction from these documents have been incorporated into Alternative E of this Supplement. The final *Recovery Plan* is expected to be completed by USFWS in 1994. The Supplement will also be reviewed by the USFWS under informal consultation.

After public review and comments, Alternative E will be considered in the development of the Proposed RMP/EIS. This document will be submitted to the USFWS for formal Section 7 consultation and released to the general public for a 30 review and comment period. After resolution of any protests, BLM will prepare an Approved Plan and Record of Decision, anticipated to be released in late fall of 1994.

Concurrent with the above process, Clark County is preparing a long-term habitat conservation plan (HCP) for the desert tortoise. A short-term HCP was completed in 1993 and is now being implemented, in coordination with BLM. Coordination with Clark County in the development of the Proposed and Approved Plan will be ongoing. City governments, State and Federal agencies will also continue to provide input.

Table 5-1. List of preparers.

Name	Contribution	Qualifications	Year of Experience
Jerry Wickstrom	Team Leader	B.S.-Wildlife Mgmt.	32
Robert Bruno	Off-Highway Vehicles	B.A.-Environ. Studies	15
Jeanie Cole	Wildlife Habitat Mgmt. Aquatic Habitat Mgmt. ACECs	B.S.-Wildlife Ecology	8
Tom Cook	Geology, Minerals	B.S.-Geography B.S.-Geology	15
Sharon DiPinto	Lands, Rights-of-Way, Acquisitions		15
Dawna Ferris	Writer/Editor	M.A.-Anthropology	8
Gary McFadden	Wild Horse & Burro Mgmt	BS- Range Mgmt.	18
Keith Myhrer	Cultural Resources Traditional Lifeways Paleontological Resources	M.A.-Anthropology	9
Donn Siebert	Air Resources, Soils, Water Resources, Riparian Mgmt.	B.S.-Watershed Mgmt. B.S.-Forest Mgmt.	15
Bob Stager	Livestock Grazing	M.S.-Range Mgmt.	18
Jeffery Steinmetz	Livestock Grazing, Wild Horse & Burro Mgmt Vegetation, Forestry	B.S.-Range Mgmt.	16
Rick Waldrup	Recreation, Wilderness VRM, Wild & Scenic Rivers, Natural Areas	B.S.-Outdoor Rec. Mgmt.	13
Rhett Wise	Land Appraisal	B.S.-Forestry	17
Jim Caplinger	Cartography	Drafting/Cartography	10
Jim MacDonald	Cartography	Drafting/Cartography	6

The evaluation of corridor routes involved field review and consultation with utilities, technical professionals, electric power sales and marketing specialists, property owners, and local governments. Oil and gas leasing scenarios were coordinated with Egan Resource Area (Ely District-BLM) and the Nevada State Office, BLM. The following were contacted during prepartion of the Supplement.

Rangeland Classification

U.S. Department of Agriculture- Soil Conservation Service
Nevada State Office, BLM-Branch of Biological Resources
Jerry Townsend, Range Consultant

Corridors

Meetings were held with the following groups:

City of Henderson
Lake Las Vegas and Calico Ridge Subdivision Owners-Henderson
Nevada Department of Wildlife
Los Angeles Department of Water and Power
Western Utility Group (Western Regional Corridor Study)
Western Area Power Administration (Navaho Transmission Project)

Technical information and professional advice was received from the following sources:

Nevada State Office, BLM, Branch of Lands and Recreation, Branch of Appraisal
Western Area Power Administration (WAPA), Salt Lake City Area Office
Western Area Power Administration, Golden, Colorado (Undergrounding)
Electric Power Research Institute (EPRI) (Undergrounding)
Project Manager, EPRI, Waltz Mill Project (Undergrounding)
*Mitsubishi Electric Power Products (SF-6 Undergrounding Technology)
*ABB Power T and D Company, Inc. (SF-6 Undergrounding Technology)
Bonneville Power Administration, Office of Power Sales
Bonneville Power Admninistration, Research and Development
Nevada Public Service Commission
Nevada Power Company (MAT Project)
Clark County Comprehensive Planning
City of North Las Vegas

Minerals

Ely District, Egan Resource Area, (Oil and Gas Leasing)
U.S. Geological Survey, Department of Geology, University of Montana
U.S. Bureau of Mines, Spokane, Washington
Nevada Department of Minerals, Las Vegas and Carson City, Nevada
Nevada State Office, BLM, Division of Mineral Resources
*Simplot Company
* IMV Division of Floridian

(* The mention of companies or trade names does not constitute endorsement or recommendation for use)

Desert Tortoise Recovery Plan

Clark County Implementation and Monitoring Committee for the Clark County Tortoise Habitat Conservation Plan

Wild Horse and Burro Management

U.S. Forest Service-Spring Mountain National Recreation Area
National Park Service- Lake Mead National Recreation Area

Lands Actions

Bureau of Reclamation
Clark County Comprehensive Planning
U.S. Forest Service-Toiyabe National Forest

Traditional Lifeways Areas

Las Vegas Indian Center
Moapa Band of Paiutes
Aha Makav Cultural Society
Colorado River Indian Tribes

Socio-Economic Data

U.S. Fish and Wildlife Service Office of Endangered Species-Region 1
Cedar City Livestock Auction, Cedar City, Utah
Gallagher Livestock Auction, Fallon, Nevada
University of Nevada, Las Vegas, Center for Business and Economic Research
Univerity of Nevada, Reno, Department of Agricultural Economics
Sierra Nevada Production Credit Association, Fallon, Nevada

CHAPTER 6

PLAN IMPLEMENTATION, MAINTENANCE, AND AMENDMENT

CHAPTER 6

PLAN IMPLEMENTATION, MAINTENANCE, AND AMENDMENT

INTRODUCTION

The Stateline RMP has been designed to provide the framework for management of the public lands in the Stateline Resource Area for a period of 20 years. To accomplish this goal, the planning process must provide for changes in the terms, conditions, and decisions of the Approved RMP, in response to unforseen future demands or events.

PLAN IMPLEMENTATION

Following the approval of the resource management plan, the BLM will implement the management actions. The following standard operating procedures will be used during the plan implementation to mitigate the impacts of those management actions.

Standard Operating Procedures

1) Management actions will conform to all laws, Executive Orders, regulations, Memoranda of Understanding, Cooperative Management Agreements, Department of Interior manuals, BLM manuals, and BLM Instruction Memoranda.

2) All management actions will require an environmental analysis prior to implementation. The environmental assessment process will evaluate the proposed action for conformance with applicable laws and regulations. During this assessment, if it is determined that significant impacts would occur that cannot be mitigated, the proposed action will be modified or abandoned.

PLAN MAINTENANCE

The Stateline RMP will be maintained as necessary to reflect minor changes in data. Situations requiring plan maintenance include changing acreage figures to reflect recent land disposals or acquisitions, to reflect new legislation, and to provide new language clarifying a decision, term, or condition. Maintenance of the Plan can not expand the scope of a resource use or a restriction, nor can it change the terms, conditions, and decisions of an approved RMP. Plan maintenance does not require formal public involvement, interagency coordination, or the preparation of an environmental assessment or environmental impact statement. Any maintenance must, however, be documented in the Plan.

PLAN AMENDMENTS

The *Federal Land Policy and Management Act* (1976) requires that all actions occurring on public land conform to an approved land use plan. The Bureau regularly receives proposals, applications, and requests for uses which are not in conformance with an approved land use plan. Approval of any of these proposals would alter the scope of a resource use, use restriction, or change the terms, conditions, or decisions of the RMP. In this situation, the Bureau has two options : to deny the request or application, based on non-conformance with the approved land use plan; or to initiate the plan amendment process. The plan amendment process may also be initiated at any time by the BLM

State Director, in response to new data obtained from plan monitoring and evaluation; new or revised policy; changes in the scope of a resource use or a use restriction; and any changes in the terms, conditions, or decisions of the RMP.

The decision to initiate the plan amendment process does not guarantee that the proposed plan amendment will be approved. The proposed amendment will be analyzed in accordance with the planning regulations and receive an appropriate level of environmental analysis, public participation, and interagency coordination (including consistency determinations with other approved Federal, State, and local land use plans), prior to the Bureau's final decision.

Based on the significance of the anticipated environmental impacts from the specific proposal and the significance of the anticipated change to the RMP, plan amendments are categorized as described below:

Category 1 - The proposed amendment, based on preliminary analysis, would not involve a significant change in the goals, objectives, terms, conditions, or decisions of the RMP and would not result in a significant environmental impact. An EIS would not be required, and the proposed plan amendment would be analyzed in an environmental assessment.

Category 2 - The proposed amendment, based on preliminary analysis, would involve a significant change in the goals, objectives, terms, conditions, or decisions of the RMP, and would result in a significant environmental impact. An EIS would, therefore, be required.

PLAN AMENDMENT PROCESS

The Stateline RMP plan amendment process will be conducted on an annual basis, except in those special circumstances where the State Director requires that the process begin immediately. In March of every year following approval of the RMP, a 30-day time period will be designated for the purpose of submitting proposed amendments to the Stateline Resource Area Manager. Public notification of the submission period will be published in the *Federal Register*, news releases will be distributed to all major media sources in Nevada, and a notice will be sent to all individuals, organizations, agencies, etc. that have requested to be on the Mailing List.

All proposed amendments submitted during this time period will be evaluated to:

- determine if the proposed amendment is in accordance with applicable laws and regulations and will provide for the immediate and future management, use, development, and protection of the public lands within the Stateline Resource Area. The BLM Stateline Area Manager will base the rationale for such determination on the principles of multiple use, sustained yield, and maintenance of environmental quality, as required in the *Federal Land Policy and Management Act* of 1976.

- determine if alternative locations within the Stateline Resource Area are available which would meet the applicant's needs without requiring a change in the RMP's classification or an amendment.

The following criteria must be present before an amendment to the plan will be considered:

(1) New data

(2) A change in legal or regulatory mandate

(3) Is supporting detail sufficient and the proposed action clearly stated so that the request can be considered

(4) A formal change in State or local government or agency plans

If the proposed amendment can not be considered due to legal or regulatory constraints, if the proposed amendment was not properly submitted, or if the situation can be resolved without a plan amendment, the amendment process will end at this point.

If a determination is made by the Stateline Resource Area Manager and the Las Vegas District Manager to proceed with the amendment process, the proposed plan amendments will be presented to the Las Vegas District Advisory Council at their April meeting for discussion and recommendations. The Council will serve only in an advisory capacity and their recommendations will not be binding on the District Manager.

The District Manager's recommendations, along with those of the District Advisory Council, will then be forwarded to the State Director, who will then decide:

- reject the proposed plan amendment, in which case the requestor will be notified of the decision and the reason for the decision.
- further consider the proposed plan amendment, in which case the Director will determine the category of the amendment with regard to the level of environmental analysis. The Bureau will then proceed with the amendment process, as indicated below.

Category 1 Amendment

- Issue Notice of Intent (NOI) to prepare a plan amendment.
- Provide a 30-day public review and comment period.
- Identify issues related to the proposed plan amendment and review existing RMP planning. criteria. Revise the planning criteria, if necessary, and provide for public comments on the revised criteria. Collect necessary data, review the existing Analysis of the Management Situation, as it applies to the proposed amendment, and revise as needed. Formulate alternatives and estimate effects of implementing any of these alternatives.
- Prepare Environmental Assessment (EA) and Finding of No Significant Impact (FONSI).
- Provide for 60-day Governor's Consistency Review.
- Issue Notice of Availability (NOA) for Proposed Plan Amendment/EA/FONSI.
- Provide a 30-day protest period.
- Resolve any protests.

- Prepare Approved Plan Amendment/Decision Record.

Category 2 Amendment

- Issue NOI to prepare a plan amendment/EIS.
- Provide a 30-day public scoping period.
- Identify issues related to the proposed plan amendment and review existing RMP planning criteria. Revise the critieria, if necessary, and provide for public comments on the revised criteria. Collect necessary data, review the existing Analysis of the Management Situation, as it applies to the proposed amendment, and revise as necessary. Formulate alternatives and estimate the effects of implementing any of these alternatives.
- Prepare Draft Plan Amendment/EIS.
- Provide for 90-day public comment and review period.
- Analyze comments, prepare Proposed Plan Amendment/Final EIS.
- Issue NOA for Proposed Plan Amendment/Final EIS.
- Provide a 30-day protest period and 60-day Governor's Consistency Review.
- Resolve any protests.
- Prepare Approved Plan Amendment/Record of Decision.

PLAN AMENDMENT INFORMATION

All requests for amendment must be submitted to the Stateline Resource Area Manager at the following address:

Bureau of Land Management
Stateline Resource Area
Attn: Area Manager
P.O. Box 26569
Las Vegas, NV 89126

Information Required from Individuals and Organizations

Requests for a plan amendment from individuals, private groups, organizations, and businesses must contain the following information.

- The reason for the request, including an explanation of how the individual, group, organization, or business is being adversely affected by existing requirements or management objectives in the RMP, or a description of the new data or circumstances that have resulted in the need to amend the RMP.
- A description of the proposed plan amendment, including objectives, direction, and actions.

Information Required from Governmental Agencies

Cities

If the request for an amendment to change the RMP is being submitted by an incorporated city, the following information must be provided.

- The request must have been approved by vote of the appropriate City Council.

- The city must show how it has been, is being, or will be adversely affected by the RMP or parts thereof, or it must describe the new data or circumstances that have resulted in the need to amend the RMP.

- The city must describe the proposed plan amendment, including objectives, direction, and actions, and show how the proposed amendment is necessary for consistency with the officially adopted city land use plan(s).

County

If the request for amendment is submitted by Clark or Nye County, the following information must be submitted.

- The request must have been approved by vote of the appropriate County Commissioners.

- The county must show how it has been, is being, or will be adversely affected by the RMP, or parts thereof, or it must describe the new data or circumstances that have resulted in the need to amend the RMP.

- The county must describe the proposed plan amendment, including objectives, direction, and actions, and show how the proposed amendment is necessary for consistency with the officially adopted county land use plan(s).

State

If request for amendment is submitted by the Legislative or Executive Branch of the State of Nevada, the following process must be followed.

- The request must have been approved by the Executive Director or Secretary of the submitting agency, after demonstrating coordination with other potentially affected State agencies.

- The State must show how it has been, is being, or will be adversely affected by the RMP, or parts thereof, or it must describe the new data or circumstances that have resulted in the need to amend the RMP.

- The State must describe the proposed plan amendment, including objectives, direction, and actions, and show how the proposed amendment is necessary for consistency with adopted State plans or programs.

Federal Agency

If the request for amendment is submitted by a department, office, or bureau of the Executive Branch of the U.S. Government (other than BLM), the following apply.

- The request must have been approved by the director of the submitting department, office, or bureau.

- The agency must show how it has been, is being, or will be adversely affected by the RMP, or parts thereof, or it must describe the new data or circumstances that have resulted in the need to amend the RMP.

- The agency must describe the proposed plan amendment, including objectives, direction, and actions, and must show how the proposed amendment is necessary for consistency with officially adopted plans or programs.

APPENDICES

APPENDIX A

APPENDIX A

DESCRIPTION OF TYPICAL OIL AND GAS ACTIVITIES

INTRODUCTION

Oil and gas exploration and development activities progress through four phases that are, in part, sequential and may overlap in time. The four phases are: preliminary exploration; exploratory drilling; field development and production; and field abandonment. Oil and gas leases are obtained prior to the exploratory drilling phase.

I. PRELIMINARY EXPLORATION PHASE

Petroleum exploration occurs in unexplored portions of areas where petroleum is known or projected to occur in commercial quantities. An area where petroleum is projected to occur in commercial quantities is known as a frontier or rank wildcat area. With declining known oil and gas reserves, it has become profitable to explore for oil and gas in less promising geological provinces and in areas where the climate, terrain, depth of deposits, and other obstacles have discouraged previous efforts. Increasingly sophisticated exploration techniques, improved oil and gas drilling, and transportation technologies have also enhanced prospects for locating, extracting, and marketing petroleum resources.

Regardless of where or why, the goal of exploration is always to find where oil and gas resources are likely to occur, how much may be present, and how deep it is located; specifically, the goal is to detect probable traps, quality and type of reservoir, source rocks, and the thickness and age of the sedimentary rocks in the area. During the preliminary exploration phase of an area, geological and geophysical exploration takes place.

Geological Exploration

Where the bedrock geology of an area is well exposed, it is often possible to predict where oil might gather. The potential traps (anticlines, faults, or formations with varying porosity) can sometimes be located with the aid of published geological maps, aerial photos, and landsat imagery. Occasionally, additional data will be gathered by aircraft. Low altitude reconnaissance flights, frequently at elevations of 100 to 500 feet, help identify rock outcrops that can be studied later on the ground.

Once potential target areas are identified, one or more geologists may examine and sample the rock outcrops in the area and map the surface geology. Geological exploration can be performed with little surface damage; 4-wheel drive pickups, motorcycles, or all-terrain vehicles are commonly used to access the area.

Geophysical Exploration

Surface geology is not always accurately indicated by surface outcroppings. In such cases, geophysical prospecting is used. Three subsurface characteristics are measured by geophysical methods including gravitational field, magnetic field, and seismic characteristics.

Geophysical (Seismic) Surveys

Seismic surveys are the most popular of the geophysical methods and seem to give the most reliable results. A seismic survey is a method of gathering subsurface geological information by recording impulses from an artificially-generated shock wave. The common procedure used in seismic surveys on land consists of creating shock waves and recording, as a function of time, the resultant seismic energy as it arrives at groups of vibration detectors (one-half to 5-pound seismometers, ("geophones" or "jugs") arrayed on the ground at spaced intervals). These arrays of seismometers are connected to a recorder truck that receives and records the reflected seismic energy.

The seismic sensors and energy source are located along lines on a one to two mile grid. Surveys may be laid out in excess of 40 miles in a series of grid patterns or in a single line.

Where possible, existing roads are used to conduct seismic operations. Some lines may require clearing of vegetation and loose rock to improve vehicle access. Each mile of line, cleared to a width of 8 to 14 feet, represents disturbance of about 1 acre; however, completely clearing a seismic line is unusual. Most lines in remote and unroaded areas are not bladed except as required to cross drainages or washes. Support and operating vehicles travel overland for the most part. In extreme cases, a bulldozer may be used to tow the vehicles through rough spots or in sandy areas.

In remote areas where there is little known subsurface data, a series of short seismic lines may be required to determine the characteristics of the subsurface formations. After this, seismic lines would be aligned to make seismic interpretations more accurate. Although alignment may be fairly critical, spacing of the lines can often be changed up to a quarter of a mile on 1-mile grid before the results will affect the investigation program. This allows some adjustment for existing or alternate access of lines.

Seismic methods are usually referred to by the various methods of generating the shock wave. The following are some of the more common methods.

Vibroseis

The vibrator (or vibroseis) method is widely used and is replacing the explosive method in accessible areas. A typical operation would use 3 or 4 large trucks or tractors, each equipped with a vibrator mounted between the front and back wheels, 4 or 5 support vehicles, and a crew of 10 to 15 people.

The vibrator pads (about 4 feet square) are lowered to the ground and vibrators on all trucks are triggered electronically from a recording truck. After the information is recorded, the trucks move forward a short distance and the process is repeated.

The above referenced methods have similar surface-disturbing factors in common. Generally, the methods involve travel either on existing roads or off-road with four to five energy source trucks (usually weighing 10 to 20 tons) plus the recording truck and cable trucks or pickups. The vehicles may travel off-road along a single two-lane trail made by the trucks as the survey progresses. The vehicles may make several parallel trails in an attempt to distribute travel loads over a broader area. Travel along the line or seismic "trail" usually consists of one or two passes by the vehicle since the energy source is mobile and recording is accomplished as the vehicles move down the line.

Explosives

Historically, explosives have been the most widely used way to generate seismic shock waves. Subsurface and surface explosives are used.

Subsurface Explosives

In the subsurface explosive method, 5 to 50 pounds of explosive charge are detonated at the bottom of a 25 to 200-foot drill hole. The hole is usually 2 to 6 inches in diameter and drilled with a truck-mounted drill. Access suitable to the travel of drill and recording trucks across the surface is desirable. Detonation of the charge usually results in no surface disturbance; however, depending on the nature of the soils or valley fill, a small shallow depression up to 6 feet in diameter may result.

Cuttings from the well are normally hauled to a suitable disposal site, scattered by hand near the "shot hole," or put back into the shot hole afterwards. Bentonite mud is often used to plug the shot hole. The same hole may be reloaded and shot several times to find the depth and charge returning the best signal.

Shot hole operations are similar to vibroseis operations since the drill is transported by truck. As with other truck transported operations, existing roads may be used or trails may be blazed by the drill vehicles and/or a bulldozer. A truck-mounted drill and shot operation generally takes longer to complete and requires more trips by vehicles along a line (drill service equipment) than does vibroseis operations.

Where access limitations, topography, or other restraints prevent use of truck-mounted drill rigs or recording trucks, light weight, portable drill equipment can be used. Various kinds of portable drills can be backpacked or delivered by helicopter to the area. These portable operations use a pattern of holes drilled to a depth of about 25 feet. The holes are loaded with explosives and detonated simultaneously.

Surface Explosives

The surface explosives charge method (Poulter method) involves placing explosives directly on ground, on snow, or on a variety of stakes and platforms. Paper cones, survey stakes, lathes, or 2x4s up to 8 feet in length have been used with varying success in different areas. The use of explosives on tall stakes or explosives placed on the surface of deep snow results in good seismic data in some areas while creating little or no visible surface disturbance.

Surface explosive methods are very mobile. Generally, 4x4 vehicles are used for transportation, although the method is adaptable to airborne and pack teams.

A given area may be explored several times by the same or different companies over a long period of time. Multiple exploration programs may be undertaken because first attempts were unsuccessful, another company wants its own information or new, different techniques and/or equipment are available.

Other Geophysical Methods

Other geophysical methods used to explore for oil and gas resources include gravitational, magnetic, induced polarization (IP), soil-gas probes, and controlled source audio-frequency magnotelluric (CSAMT) surveys. These methods utilize small portable units that are easily transported via light ground vehicles such as four-wheel drive Off-Highway Vehicles (OHVs) or aircraft. Off-highway vehicle traffic is common with these types of surveys. Data acquisition along the test lines or grids for these methods sometimes require small holes to be hand dug for instrument placement.

II. EXPLORATORY DRILLING PHASE

Drilling does not begin until a lease has been acquired by the operator. When preliminary investigations are favorable and warrant further exploration, exploratory drilling may be justified. Stratigraphic tests and wildcat tests are the two types of exploratory drill holes.

Stratigraphic Tests

Stratigraphic ("strat") tests involve drilling relatively shallow holes to supplement seismic data. These tests aid in revealing the nature of near-surface structural features. The holes are usually from 100 to several thousand feet deep, and are drilled primarily by rotary drill rigs. As the rock is drilled, the resulting rock chips are brought to the surface by a high-pressure airflow or circulating drilling mud.

Samples of these chips are collected, bagged, and identified as to depth of origin. These are then studied by a geologist to determine composition, age, and possible formation.

Truck-mounted drilling equipment for strat tests is fairly mobile; therefore, roads and trails to test locations on level solid ground are temporary and involve minimal construction. Generally, access roads are bladed to a width of 12 to 14 feet and are not crowned or ditched. Some roads may simply be surface scraped; i.e., vegetation is clipped off next to the soil surface. In hilly or mountainous areas, more road building and pad construction may be necessary requiring cuts in excess of 20 feet and fills exceeding ten feet. Strat tests requiring a large amount of construction and several acres of cut and fill are unusual since construction costs may outweigh the information gained.

An area of about one-half acre or less is leveled and cleared of vegetation for the average drill site. If high pressure air is used to remove rock chips of rock cuttings, rock dust may be emitted to the air. If mud is used as a drilling fluid, mud pits may be excavated; more commonly, portable mud tanks are used. Usually one to three days are required to drill the test holes depending on depth to and hardness of the bedrock. In areas with shallow, high pressure water zones, casing may be required to keep water out of the hole.

Exploration ("Wildcat") Wells

After the surface and subsurface geological studies, and geophysical studies are completed, the prospect is evaluated. Only by drilling a wildcat well (a well drilled in unproved territory) will the oil company know if the rocks in the prospect they have identified contain oil or gas.

Nationally, about one in sixteen wildcat wells produces commercial amounts of oil or gas. Locally, success ratios may be as high as one in ten.

The deeper wells may require several months or more to complete; shallower wells up to a few thousand feet deep may be completed in a few weeks of drilling. As a general rule, the deeper the test, the larger the drilling rig and facilities required.

The position of this well is determined by the lessee and/or operator and a proposal to drill is made to the BLM by either a Notice of Staking (NOS) or an Application for Permit to Drill (APD). In all cases, an on-site inspection of the proposed drilling location is made by representatives of the BLM, the lessee/operator, and other interested parties. During this on-site inspection, the site location and access route most advantageous from an environmental, geologic and engineering standpoint is selected. In addition, surface use and reclamation requirements are developed for inclusion into the APD.

The drilling program provided in the APD is reviewed by the BLM for technical adequacy and protection of subsurface resources. This review ensures the adequacy of all downhole operations associated with the drilling of the well. The APD is also reviewed for surface resource concerns and an environmental assessment (EA) is completed. Approval of the APD incorporates all requirements for surface use and drilling which were identified at the on-site and during the technical review.
After completing the necessary permitting procedures, construction of the access road and well site can begin.

Initially, construction will involve the development of an access route to the well site usually requiring a road with a 12 to 14-foot wide travel surface. Bulldozers, graders, and other types of heavy equipment are used to construct and maintain the temporary roads and the well site.

A drill "pad" (well site) is generally from 1 to 3 acres in size. The pad is cleared of all vegetation, and leveled for the drill rig, mud pumps, mud (or reserve) pit, generators, pipe rack, and tool house. Topsoil is usually removed and stockpiled for use in later reclamation of the well pad area. The mud pit may be lined with plastic or bentonite to prevent fluid loss or prevent contamination of water resources. Other facilities, such as storage tanks for water and fuel, are located on the pad or are positioned nearby on a separate cleared area. If the well site is not large enough for the equipment required to rig-up (prepare the drilling rig for operation), a separate staging area may be constructed. Staging areas are usually no larger than 200 x 200 feet and may simply be a wide flat spot along the access road on which vehicles and equipment are stored.

The start of a well is called "spudding in." A short piece of tubing called a conductor pipe is set into the ground (sometimes with a pile-driver), and cemented in place. This keeps surface sand and dirt from sloughing into the well hole. Next, the regular drill bit and drill string (the column of drill pipe) take over. These pass vertically through a heavy steel turntable (the rotary table) on the derrick floor and the conductor pipe. The rotary table is geared to one or more engines, and rotates the drill string and bit. As the bit bores deeper into the earth, the drill string is lengthened by adding more pipe to the upper end.

Once the bore hole reaches a depth of several hundred feet, another string of pipe (the surface casing), is set inside the conductor pipe and cemented in place by pumping cement between the casing and hole wall. Surface casing acts as a safety device to protect fresh water zones (aquifers) from drilling fluid contamination. To prevent the well from "blowing out" in the event the drill bit hits a high pressure zone, "blowout preventers" (large metal rams) are attached to the surface casing and are tested to a higher subsurface pressure than is expected to be encountered. These rams will close around the drill string or open hole which will seal the well bore and confine the pressure to the well bore thus preventing a blowout.

After setting the surface casing, drilling resumes using a smaller diameter bit. Depending on well conditions, additional strings of casings (intermediate casing) may be run (installed) before the well reaches the objective depth (total depth or "T.D.").

During drilling, a mixture of water, clay, barite and chemical additives known as "mud" are constantly pumped down the drill pipe. The mud exits through holes in the bit and returns to the surface outside the drill pipe. As the mud circulates, it cleans and cools the bit and carries the rock chips (cuttings) to the surface. This also helps to seal off the sides of the hole (thus preventing cave-ins) and to control the pressure of any water, gas or oil encountered by the drill bit. The mud is the first line of defense against a possible blow-out since it is used to control pressure. For this reason, the pit containing "reserve" mud (the reserve pit) is maintained on location. The reserve mud is used in emergencies to restore the proper drilling environment when radical unforeseen changes in down-hole pressure are encountered. The cuttings are separated from the mud and sampled so that geologists can note and analyze (log) the various strata through which the bit is passing. The rest of the cuttings pass into the reserve pit as waste. Some holes are drilled at least partially with compressed air which serves the same purpose of cooling and cleaning the bit and evacuating the cuttings from the hole as drilling mud.

From 5,000 to 15,000 gallons of water a day may be needed for mixing drilling mud, cleaning equipment, cooling engines, etc. A surface pipeline may be laid to a stream or a water well or the water may be trucked to the site from ponds, streams or water wells in the area. Commonly, a water well is developed on-site for these purposes.

During or at completion of drilling activity, the well is "logged". Logging means utilizing geophysical instruments to measure the physical characteristics of the rock formations and associated fluids through which the bore-hole passes. These instruments are lowered to the bottom of the well and slowly raised to the surface while recording data. Other measuring procedures include the drill stem test in which pressures are recorded and fluid samples taken from zones of geologic interest. After studying the data from those logs and tests, the geologist and/or petroleum engineer decide if the well will produce petroleum.

If the well does not encounter oil and gas, it is plugged with cement and abandoned. The well pad and access road are recontoured and reseeded to establish vegetation. If a water well has been developed on-site, the well may be turned over to the land-managing agency for resource enhancement uses such as wildlife or livestock waters. If the well will produce, casing is run to t producing zone and cemented in place. The drill rig is usually replaced by a smaller rig that is used for the final phase of completing the well.

III. FIELD DEVELOPMENT AND PRODUCTION PHASE

Field Development

If a wildcat well becomes a discovery well (a well that yields commercial quantities of oil or gas), additional (development) wells will be drilled to confirm the discovery, establish the extent of the field and to efficiently drain the reservoir. The procedures for drilling development wells are about the same as for wildcats except there is usually less subsurface sampling, testing and evaluation. If formation pressure can raise oil to the surface, the well will be completed as a flowing well.

Several downhole acid or fracture treatments to enhance the formation porosity and permeability may be necessary for the well to produce in commercial quantities. A free-flowing well is simply closed off with an assembly of valves, pipes, and fittings (called a "christmas tree") to control the flow of oil and gas to other production facilities. A gas well may be flared for a short period of time to measure the amount of gas per day the well can produce, after which it may be then shut-in or connected to a gas pipeline.

If the well is not free-flowing, it will be necessary to use artificial lift (pump) methods. These are explained, along with well production equipment and procedures, in the following section on production. After a pump is installed, the well may be tested for days or months to see if it is economically justifiable to produce the well and to drill additional development wells. During this phase, more detailed seismic work may be run to assist in precisely locating the petroleum reservoir and to improve upon previous seismic work.

As with wildcat wells, field development well locations are cadastrally surveyed to establish legal location. The State of Nevada has regulations regarding the location and density (well spacing) of producing oil and gas wells. This well spacing pattern was established by the Nevada State Minerals Commission. Exceptions to state spacing regulations may be granted for pool or field conditions after a public hearing by the Minerals Commission. The BLM has the authority to waive state spacing regulations in the interest of conservation but normally abides by the state spacing regulations.

Oil well spacing for production from federal leases in Nevada is a minimum of 40 acres for wells with depths 5000 feet or less and 160 acres with wells with depths greater than 5000 feet. Most gas well spacing for production from federal leases in Nevada employ units of 160 and 640 acres per well. Spacing for both oil and gas wells is based on the characteristics of the producing formation. If a field is producing from more than one formation, the surface location of the wells may be much closer than one per 40 acres. The State of Nevada revised regulations adopted spacing requirements where Federal oil and gas units are exempt from

state spacing requirements. Most of the producing fields in Nevada have been discovered as unit wells. Although federal units are exempt from state spacing regulations, all of the producing oil wells in federal units in Nevada conform to these regulations.

During the development stage, the road system of the area is greatly expanded. Once it is known which wells produce and their potential productive life, a permanent road system can be designed and built. Because it often takes several years to develop a field and determine field boundaries, the permanent road system is usually built in segments. Since the roads in an expanding and developing field are built in segments, many temporary roads (built initially for wildcats or development) end up as long term (in excess of 15 years) primary access or transportation roads. Planning of temporary roads for wildcat wells and development wells is done with road conversion for the long-term in mind.

Since development wells have longer life spans than wildcat wells, access roads for development wells are better planned, designed and constructed. Access roads are normally limited to one main route to serve the lease areas with a maintained side road to each well. Upgrading of temporary roads may include ditching, draining, installing culverts, graveling, crowning, or capping the roadbed. The amount of surface area needed for roads would be similar to that for temporary roads and would also be dependent on topography and weight loads to be transported over it. Generally, main access roads are constructed with travel surfaces 20 to 24 feet wide and side roads, 14 to 18 feet wide.

When an oil field is developed on the current minimum spacing pattern of 40 acres per well, the wells are 1,320 feet apart in both north-south and east-west directions. Development over one section of land (1 square-mile) with 16 wells usually requires construction of at least 4 miles of access roads. In mountainous terrain, the length of access roads may be increased since steep slopes, deep canyons, and unstable soil areas must often be circumvented in order to construct stable access to the wells.

Surface disturbance for a gas field may be similar to an oil field even though the spacing of wells is usually more at 160 acres. Although a 160-acre spacing allows only four wells per section of land, associated pipeline systems often result in similar amounts of surface disturbance as a well field with 40-acre spacing.

In addition to roads, other surface uses for development drilling may include flowlines; storage tank batteries; facilities to separate oil, gas and water (separators and treaters); and injection wells for water disposal. Some of the facilities may be installed at each producing well site, and others at places situated to serve several wells. These facilities are discussed further in the following section on Production.

The rate of development well drilling depends on a combination of whether the field is operated on an individual lease basis or unitized; the probability of profitable production; availability of drilling equipment; protective drilling requirements (drilling requirements to protect federal land from subsurface petroleum drainage by off-setting non-federal wells) and the degree to which limits of the field are known. The most important development rate factor may be the quantity of production. If the discovery well has a high rate of production and substantial reserves, development drilling usually proceeds at a fairly rapid pace. If there is some question whether reserves are sufficient to warrant additional wells, development drilling may occur at a much slower pace. An evaluation period to observe production performance may follow between the drilling of successive wells.

As previously mentioned, drilling in an undeveloped part of a lease to prevent drainage of petroleum to an offset well on an adjoining lease (protective drilling) is frequently required in areas where fields and lease holdings are intermingled federal and privately owned land. The terms of federal leases provide for such drilling if the offset well is on non-federal lands or on federal lands leased at a lower royalty rate.

Many fields may progress through several development phases. A field may be considered fully developed and produce for several years, then a well may be drilled to deeper pay zone. Discovery of a new pay zone in an existing field is a "pool" discovery as distinguished from a new field discovery. A pool discovery may lead to the drilling of additional wells, often from the same drilling pad as existing wells with the bore-holes separated only by feet or inches. Existing wells may also be drilled deeper.

Transportation Development

Pipelines 4 to 6 inches in diameter are usually employed to transport the petroleum between the well, treatment, separating facilities and central collection points. These pipelines may be on the surface, buried or elevated.

Pipelines may be used to transport oil and gas if the field is of sufficient size. The pipelines are used to move the oil from gathering stations to refineries. Transport by truck is often used move crude oil from small fields where installation of pipelines is not economical and/or the natural gas from the field is not economically marketable.

Production

Production in an oil field begins just after the discovery well is completed and is usually concurrent with development operations. Temporary facilities may be used at first but as development proceeds and reservoir limits are determined, permanent facilities are installed. The extent of such facilities is dictated by the number of producing wells; expected production; volume of gas and water produced with the oil; the number of leases and whether the field is to be developed on a unitized basis.

The primary means of extracting oil from a well is by pump jacks. The pump jacks may be powered by electric motors requiring construction of powerlines. If there is sufficient casing head gas (natural gas produced with the pumped oil) or another gas source available internal combustion engines may be employed.

Any production activities resulting in new or additional surface disturbance and/or not approved under the APD, require approval of the authorized officer of the BLM. Activities requiring prior approval include but are not limited to: re-drilling, deepening, performing casing repairs, plugging back, altering casing, performing nonroutine fracturing jobs, recompleting in a different interval, performing water shutoff and converting to injection or disposal.

Disposal of Produced Water

Some wells drilled in an area may produce sufficient water which must be disposed of during the operation of the well. Although most produced waters are brackish to highly saline, some are fresh enough for beneficial use. If water is to be discharged, it must meet certain water quality standards. Because water may not come from the treating and separating facilities completely free of oil, oil skimmer pits may be established between separating facilities and surface discharge.

When salt water is disposed of underground, it is usually introduced into a formation containing water of equal or poorer quality. The water may be injected into the producing zone from which it came or into other producing zones. In some cases, it could reduce the field productivity and may be prohibited by state regulation or mutual agreement of operators. In some fields, dry holes or depleted producing wells are used for water disposal but occasionally new wells are drilled for disposal purposes. Cement is squeezed between the casing and sides of the well to prevent the water from migrating up or down from the injection zone into other formations.

Crude oil is usually transferred from the wells to tank storage facilities (a tank battery) before it is transported from the lease. If the oil contains gas and water, they are separated out before the oil is stored in the tank battery. The treating and separating facilities are usually located at a storage tank battery on or near the well site.

After the oil, gas and water are separated, the oil is piped to storage tanks located on or near the lease. Normally, there are at least two storage tanks; so one tank can be filled as the contents of the other are measured, sold, and transported. The number and size of tanks vary with the rate of production on the lease and with the extent of automation in gauging the volume and sampling the quality of the tank contents.

IV. FIELD ABANDONMENT PHASE

The life-span of fields varies because of the unique characteristics of any given field. Such factors as proven reserves, reservoir characteristics, the nature and quality of the petroleum, subsurface geology, political, economic and environmental constraints all affect a field's life-span from discovery to abandonment. An estimate of 15 to 25 years is used for the average life of a typical field. Abandonment of individual wells may start early in a field life and reach a maximum when the field is depleted.

Well plugging and abandonment requirements vary with the rock formations, subsurface water, well site and the well. Generally, however, in a dry (never produced) well, the bore hole below the casing is filled with heavy drilling mud, a cement plug installed at bottom of the casing, the casing is filled with heavy mud and a cement cap installed on the top of the casing. A pipe monument giving the location, lease number, operator and name of the well is required unless waived by the authorized officer. If waived, the casing may be cut off and capped below ground level. Protection of aquifers and known oil and gas producing formations may require placement of additional cement plugs.

In some cases, wells that formerly produced are plugged as soon as they are depleted. In other cases, depleted wells are not plugged immediately but are allowed to stand idle for
possible later use in a secondary recovery program. Truck-mounted equipment is used to plug former producing wells. In addition to the measures required for a dry hole, plugging of a depleted producing well requires a cement plug in the perforated section in the producing zone. If the casing is salvaged, a cement plug is put across the casing stub. The cement pump jack foundations are removed or buried below ground level. Surface flow and injection lines are removed but buried pipelines are usually left in place and plugged at intervals as a safety measure.

After plugging, the drilling rig is removed and the surface, including the reserve mud pit, is restored to the requirements described in the APD. This may involve the use of bulldozers and graders to recontour disturbed areas associated with the drill pad and the access road to the pad. The reserve pit must be evaporated or pumped dry and filled with the top soil material stockpiled when the site was prepared. Little leakage will occur if the pit was lined with plastic or bentonite. The area will be recontoured to restore the landform as near as possible to its original contour, minimize erosion and allow revegetation to take place. After grading the subsoil and spreading the stockpiled topsoil, the site is seeded with a grass mixture that will establish a vegetative cover. A fence may be erected to protect the site until revegetation is complete, particularly in livestock grazing areas. In many instances, any water wells developed are turned over to the land-managing agency to use for resource enhancement; i.e., wildlife, livestock, recreation.

APPENDIX B

STANDARD PRACTICES AND PROCEDURES
FOR GEOPHYSICAL OPERATIONS
AND
CONDITIONS OF APPROVAL

PROPOSED AMENDMENT
STANDARD PRACTICES AND PROCEDURES

Geophysical Operations

1. The operator shall furnish a project map(s) at a minimum scale of 1:100,000 with the Notice of Intent (NOI) depicting the approximate line route to be used. A map shall also be filed with the Notice of Completion (NOC) depicting the actual location of the complete line.

2. Any changes in location of geophysical lines or test arrays will be brought to the attention of the authorized officer prior to the change being made on the ground.

3. No blading or other dirt work will be allowed without prior approval of the authorized officer.

4. All disturbed areas will be reclaimed as directed by the authorized officer. Bond liability will not be released until this reclamation is completed to the satisfaction of the authorized officer.

5. Reclamation required by the authorized officer will be done concurrently with the geophysical operations insofar as possible or within 30 days of the authorized officer's receipt of the NOC. Reseeding will be undertaken by the operator between the dates of October 1 and March 15. Reclamation will be required in Desert Wildlife Management Areas (DWMAs) and bighorn sheep habitat.

6. No blasting will be permitted within 1/4-mile of historic trails, natural areas, identified archaeological sites, recreation areas, known caves, water wells or springs.

7. During periods of adverse conditions affecting soil moisture caused by climatic factors such as thawing, heavy rains, snow, flooding or drought, all activities off existing maintained roads that create excessive surface rutting will be suspended. When adverse conditions exist, the operator will contact the authorized officer for an evaluation and decision based on soil types, soil moisture, slope, vegetation, and cover.

8. Off-road vehicular travel shall be held to an absolute minimum necessary to complete operations.

9. Powder magazines shall be located at least 1/4-mile from travelled roads. Loaded shot holes and charges shall be attended at all times.

10. All trash, flagging, lath, etc. will be removed and hauled to an authorized disposal site. No oil or lubricants shall be drained into the ground surface.

11. The operator shall notify the authorized officer the date rehabilitation operations commence and are completed.

12. A portable mud pit is recommended when drilling with fluids and will be required by the authorized officer as needed to protect natural resources.

13. A copy of these recommended operating procedures shall be kept by the party chief of each geophysical crew.

14. The operator may be required to have fire fighting equipment available on-site while operations are in progress, depending on hazards inherent in the type of operation and fire hazard levels. The quantity and type of equipment will be specified by the authorized officer. All uncontrolled fires will be reported immediately to the authorized officer **(702-647-5090: Las Vegas Interagency Fire Dispatch Center or 1-800-633-6092)**.

15. The use of specialized low surface impact equipment (wide or balloon tired vehicles, ATVs) and/or helicopters may be required for any activities in off-road areas where it is deemed necessary by the authorized officer to protect the fragile soils and/or other resource values.

16. Activities of the geophysical operations shall not prevent, obstruct, or unduly interfere with any activities of other authorized users of the public lands.

17. Removal or alteration of existing improvements (fences, cattle guards, etc.) is not allowed without prior approval of the authorized officer. Existing improvements will be maintained in a serviceable and safe condition.

18. Fences shall not be cut without prior approval of the authorized officer. Before cutting through any fences, the operator shall firmly brace the fence on both sides of the cut; a temporary gate will be installed for use during the course of operations unless the fence is immediately repaired. Upon completion of operations, fences shall be restored to at least their original condition.

19. Drill hole cuttings will be returned to the hole if possible, or at a minimum, raked and spread out so as not to impede regrowth of vegetation or to create erosion problems.

20. Any identified peregrine falcon nests or roost sites and occupied raptor aeries (nests) will be avoided during geophysical operations. A 1/2-mile buffer zone will be imposed on all activities in these areas.

21. Consultation with the U.S. Fish and Wildlife Service is required per section 7 of the Endangered Species Act if any proposed listed or listed threatened or endangered species or its critical habitat is likely to be affected by project activities. If, through consultation, there is deemed to be an adverse impact to a T&E species or its habitat, the proposal must be modified or denied. Terms and conditions developed through section 7 consultation will be implemented.

22. Actions which would adversely impact a federally listed candidate threatened or endangered plant or animal species or its habitat will be modified in order to prevent possible future listing of these species as threatened or endangered.

23. Cultural resource inventories, if required, will be conducted on all proposed project routes or areas of potential surface disturbing impacts prior to authorization of the geophysical operations. Inventories will be completed by BLM or BLM-approved cultural resource permit holders.

24. All identified cultural resources will be avoided by project-related activities per the Nevada BLM Programmatic Agreement for Cultural Resources. If avoidance is not feasible, geophysical activities must cease until mitigating measures are developed and implemented and Section 106 consultation is completed. Archaeological monitors may be required in special cases.

25. The operator is responsible for informing all persons associated with the project that knowingly disturbing cultural properties (historic or archaeological) or collecting artifacts is illegal.

26. During winter geophysical operations, requirements for cultural resource inventories may be waived by the authorized officer if the unsurveyed lines are located on bare and frozen ground or are completely covered (100%) by snow and the snow is sufficiently deep (approximately 4-6") to prevent ground disturbing ruts. Should conditions change while operations are in progress, the Operator must contact the authorized officer to determine if an archaeological monitor or a Class III survey is required prior to continuance of geophysical activities.

27. For any geophysical operations occurring within listed National Register Districts or National Register-eligible properties and districts, a Section 106 consultation for a Determination of Effect must be completed and mitigation measures developed and implemented prior to authorization.

28. All geophysical and leasing activities proposed in Wilderness Study Areas (WSAs) will follow the guidance set forth under H-8550-1 Interim Management Policy and Guidelines for Lands Under Wilderness Review.

29. All geophysical or oil and gas activities proposed in designated wilderness areas will follow the guidance set forth under 43 CFR 8560 Management of Designated Wilderness Areas, the Wilderness Management Plan and any special provisions contained in the specific legislation designating the Wilderness Area.

30. No geophysical operations will be authorized in crucial bighorn sheep habitat from June 1 through September 30.

31. No geophysical exploration involving off-road travel will be authorized in DWMAs from March 1 through October 31. If deemed appropriate, a biological monitor will be on-site during testing.

32. Off-site mitigation fees may be required in desert tortoise habitat.

CONDITIONS OF APPROVAL (COAs)

Application for Permit to Drill (APD) and Sundry Notices

The regulations governing drilling operations on public lands are stated in 43 CFR 3160. With submittal of an APD or Sundry Notice by the operator or lessee, the following conditions of approval may be required for the operation as applicable.

Pre-Construction

1. Existing roads should be used to the extent possible. Additional roads, if needed, shall be kept to an absolute minimum and the location of routes must be approved by the authorized officer prior to construction.

2. Upon determination of an impending field development, a transportation plan will be requested to reduce unnecessary access roads.

3. Off road travel will be restricted to terrain with less than 30 percent slopes unless approved by the authorized officer. A biological monitor may be required on-site in DWMAs where off-road travel occurs.

4. All proposed surface disturbance and vehicular travel will be limited to the approved well location and access route.

5. Any changes in well location, facility location, access or site expansion must be approved by the authorized officer in advance.

6. Prior to approval of an APD or other lease operations, a Section 106 consultation must be completed by the authorized officer as provided for under the Nevada BLM Programmatic Agreement for Cultural Resources.

7. Any activity planned within a 1/4-mile on either side of the Pony Express Trail must undergo a visual assessment. Appropriate mitigation of visual impacts will be implemented as necessary to keep the management corridor in as natural a condition as possible.

Well Pad and Facility Construction

1. Every pad, access road or facility site must have an approved surface drainage plan.

2. A site diagram depicting the location of production facilities, recontoured slopes and stabilization measures shall be approved by the authorized officer prior to installation of production facilities.

3. Drainage from disturbed areas will be confined or directed so that erosion of undisturbed areas is not increased. In addition, no runoff water (including that from roads) will be allowed to flow into intermittent or perennial waterways without first passing through a sediment-trapping mechanism. Erosion control structures may include: waterbars, berms, drainage ditches, sediment ponds, or other devices. Discharge of dredged or fill material into surface waters such as navigable and interstate waters and their tributaries, wetlands adjacent to those waters and all impoundments of those waters will require a section 404 permit issued by the COE.

4. Access road construction for exploratory wells should be planned such that a permanent road can later be constructed in the event of field development.

5. Construction of access roads on steep hillsides and near watercourses will be avoided where alternate routes provide adequate access.

6. Access roads requiring construction with cut and fill will be designed to minimize surface disturbance and take into account the character of the landform, natural contours, cut material, depth of cut, where the fill material will be deposited, resource concerns and visual contrast.

7. Fill material will not be cast over hilltops or into drainages. Cut slopes should normally be no steeper than 3:1 and fill slopes no steeper than 2:1.

8. Low water crossings should be used whenever possible. Installation of culverts, if necessary, will be designed to maintain the original stream gradient and of adequate size to accommodate a 24-hour 100-year event. Fill material will be properly compacted in layers not exceeding 6 inches in thickness to insure stability and to prevent washing out or dislocation of the culvert. The road surface should not be less than 12 inches above the culvert to prevent crushing from weight loads.

9. As required, fill slopes surrounding culverts will be riprapped with a well graded mixture of rock sized containing no material greater than two feet or smaller than three inches. The ratio of maximum to minimum dimension of any rock shall not exceed 6:1.

10. Water turnouts needed to provide additional drainage will be constructed not to exceed two percent slope to minimize soil erosion.

11. Well site layout should take into account the character of the topography and landform. Deep vertical cuts and steep long fill slopes should be avoided. All cut and fill slopes should be constructed to the least percent slope practical.

12. Trash will be retained in portable trash cages and hauled to an authorized disposal site for disposal. Burning will not be allowed on the well site.

13. No drilling or storage facilities will be allowed within 500 feet of any pond, reservoir, canal, spring or stream. Other protective areas near water may be required to protect riparian habitat and T&E species.

14. Springs and water developments on public lands may be used only with the prior written approval of the authorized officer or the water rights holder.

15. To maintain esthetics values, all semi-permanent and permanent facilities will be painted to blend with the natural surroundings. The Standard Environmental Colors will be used for color selection.

16. Fences shall not be cut without prior approval of the authorized officer. Before cutting through any fences, the operator shall firmly brace the fence on both sides of the cut; a temporary gate will be installed for use during the course of operations unless the fence is immediately repaired. Upon completion of operations, fences shall be restored to at least their original condition.

17. As directed by the authorized officer, cattle guards will be installed whenever access roads are through pasture gates or fences. These cattle guards shall be maintained. This includes cleaning out under cattle guard bases when needed.

18. The depth of surface soil material to be removed and stockpiled will be specified by the authorized officer. If topsoil is stockpiled for more than one year, the stockpile shall be seeded or otherwise protected from wind and water erosion. The stockpile shall be marked or segregated to avoid loss or mixing with other subsurface materials. Any cactus or yucca removed will be separated from soils and stockpiled separately.

19. Mud, separation pits and other containments used during the exploration or operation of the lease for the storage of oil and other hazardous materials shall be adequately fenced and posted.

20. If historic or archaeological materials are uncovered during construction, the operator is to immediately stop work that might further disturb such materials, and contact the authorized officer. Within five working days the authorized officer will inform the operator as to the following:

    A. Whether the materials appear eligible for the National Register of Historic Places;

    B. The mitigation measures the operator will likely have to undertake before the site can be used (assuming *in situ* preservation is not necessary); and,

    C. A timeframe for the authorized officer to complete an expedited review under 36 CFR 800.11 or other applicable Programmatic Agreement, to confirm, through the State Historic Preservation Officer, that the findings of the authorized officer are correct and that mitigation is appropriate.

21. If the operator wishes, at any time, to relocate activities to avoid the expense of mitigation and/or the delays associated with the process described in item 20 above for inadvertent discovery of cultural resources, the authorized officer will assume responsibility for whatever recordation and stabilization of the exposed materials may be required. Otherwise, the operator will be responsible for mitigation costs. The authorized officer will provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the authorized officer that the required mitigation has been completed, the operator will then be allowed to resume construction.

22. Peregrine falcon nest and roost sites and known occupied raptor aeries (nests) will be avoided during the nesting and fledging period.

23. The cutting of rare, unique or unusual trees will not be permitted. In particular cutting of Bristlecone pine, Swamp Cedar, Ponderosa pine and White Fir will be avoided.

24. Consultation with the U.S. Fish and Wildlife Service is required per section 7 of the Endangered Species Act prior to approval of an APD or other lease operations if any proposed listed or listed threatened or endangered species or its critical habitat is likely to be affected by project activities. If there is deemed to be any adverse impact the proposal would be modified or the request denied. All terms and conditions developed through section 7 will be implemented.

25. Actions which would adversely impact a federally listed candidate threatened or endangered plant or animal species will be modified in order to prevent possible future listing of these species as threatened or endangered.

26. Fences shall be flagged with bright colored flagging at least every rod for visibility to wild horses. All fences should be constructed using green steel posts with white or silver tops to increase visibility. Fences should also avoid obvious horse migration routes (deep trails, stud piles) if at all possible.

27. Off-site mitigation fees may be required in desert tortoise habitat.

Field Operation

1. Operations shall be done in a manner which prevents damage, interference, or disruption of water flows and improvements associated with all springs, wells, or impoundments. It is the operator's responsibility to enact the precautions necessary to prevent damage, interference, or disruptions.

2. Companies controlling roads which provide access into crucial wildlife areas may be required to close the road with a lockable gate to prevent general use of the road during critical periods of the year when resource problems are experienced (during hunting seasons, winter, etc.). This restrictive measure would be applied where needed to protect wildlife resources or to minimize environmental degradation.

3. The use of closed road segments will be restricted to legitimate, authorized agents of the lessee and/or their subcontractor(s), the land managing agency and other agencies with a legitimate need (NDOW, other law enforcement agencies, etc.).

4. Unauthorized use or failure to lock gates during specified time frames by the lessee or its subcontractors would be considered a violation of the terms of the APD or associated grants.

5. The operator shall regularly maintain all roads used for access to the lease operation. A maintenance plan may be required. A regular maintenance program may include, but not be limited to, upgrading of existing roads, blading, ditching, culvert, drainage installation, and graveling or capping of the roadbed.

6. Noxious weeds which may be introduced due to soil disturbance and reclamation will be treated by methods to be approved by the authorized officer. These methods may include biological, mechanical, or chemical. Should chemical methods be approved, the lessee must submit a Pesticide Use Proposal to the authorized officer 60 days prior to the planned application date.

Reclamation and abandonment

1. A water well may be accepted by the Las Vegas District upon completion of operations. Please submit the following information to the Las Vegas District Office, Bureau of Land Management, P.O. Box 26569, 4765 W. Vegas Drive, Las Vegas, Nevada, 89126.
   A. Water analysis;
   B. Type of inside diameter of casing used in well;
   C. Total depth of well;
   D. Depth of concrete seal;
   E. Depth of static water level;
   F. Water bearing formation or description of aquifer.

2. The operator or contractor will contact the authorized officer 48 hours prior to reclamation work.

3. Restoration work may not begin on the well site until the reserve pits are completely dry.

4. All disturbed areas will be recontoured to blend as nearly as possible with the natural topography prior to revegetation. This includes removing all berms and refilling all cuts. All compacted portions of the pad will be ripped to a depth of 12 inches unless in solid rock.

5. Site preparation for reclamation may include contour furrowing, terracing, reduction of steep cut and fill slopes installation of water bars, etc.

6. All portions of the access roads not needed for other uses as determined by the authorized officer will be reclaimed.

7. The stockpiled topsoil will be spread evenly over the disturbed area.

8. The operator will be required to construct waterbars and re-open drainages on abandoned access roads and pipeline routes to minimize erosion as required. Water bars will be spaced appropriately dependant upon topography and slope. Pipeline routes shall be water-barred perpendicular to the fall-line of the slope.

9. The area is considered to be satisfactorily reclaimed when all disturbed areas have been recontoured to blend with the natural topography, erosion stabilized and an acceptable vegetative cover has been established. Tougher reclamation standards may be implemented in DWMAs.

10. Rehabilitation shall be planned on the sites of both producing and abandoned wells. The entire site or portion thereof, not required for the continued operation of the well, should be restored as nearly as practical to its original condition. Final grading of back-filled and cut slopes will be done to prevent erosion and encourage establishment of vegetation.

11. Petroleum products such as gasoline, diesel fuel, helicopter fuel, crankcase oil, lubricants, and cleaning solvents used to fuel, lubricate, and clean vehicles and equipment will be containerized in approved containers.

12. Hazardous materials shall be properly stored in separate containers to prevent mixing, drainage or accidents. Hazardous materials shall not be drained onto the ground or into streams or drainage areas.

13. Totally enclosed containment shall be provided for all solid construction waste including trash, garbage, petroleum products and related litter will be removed to an authorized sanitary landfill approved for the disposal of these classes of waste.

14. All construction, operation, and maintenance activities shall comply with all applicable federal, state, and local laws and regulations regarding the use of hazardous substances and the protection of air and water quality.

15. In construction areas where recontouring is not required, vegetation will be left in place wherever possible and the original contour will be maintained to avoid excessive root damage and allow for resprouting.

16. Watering facilities (e.g., tanks, developed springs, water lines, wells, etc.) will be repaired or replaced if they are damaged or destroyed by construction activities to its predisturbed condition as required by the authorized officer.

17. Mulching of the seed-bed following seeding may be required under certain conditions (i.e., expected severe erosion), as determined by the authorized officer.

18. Seed will be broadcast between October 1 and March 15 using a site-specific seed mixture as determined by the authorized officer. Seed may be applied with a rangeland drill at half the rate of broadcast seeding. Seed depth should not exceed 1/2-inch. All seeding application rates will be in pounds of pure live seed per acre. Seed should be adapted varieties.

APPENDIX C

ACRONYMS AND ABBREVIATIONS

ACEC Area of Critical Environmental Concern
ACHP Advisory Council on Historic Preservation
ADC Animal Damage Control
AML Appropriate Management Levels
AMP Allotment Management Plan
AQCR Air Quality Control Regions
AUM Animal Unit Month
BLM Bureau of Land Management
CFR Code of Federal Regulations
DEIS Draft Environmental Impact Statement
DWMA Desert Wildlife Management Area
EA Environmental Assessment
EIS Environmental Impact Statement
EPA Environmental Protection Agency
ESA Endangered Species Act
ERMA Extensive Recreation Management Area
FEIS Final Environmental Impact Statement
FLPMA Federal Land Policy and Management Act
HA Herd Area
HMA Herd Management Area
HMAP Herd Management Area Plan
HMP Habitat Management Plan
LVDO Las Vegas District Office
MFP Management Framework Plan
MSA Management Situation Analysis
NEPA National Environmental Policy Act of 1969
NDOW Nevada Department of Wildlife
NHPA National Historic Preservation Act of 1966
NWR National Wildlife Refuge
PNC Potential Natural Community
PRP Proposed Resource Plan
PL Public Law
RMP Resource Management Plan
RPS Rangeland Program Summary
ROD Record of Decision
ROW Right-of-way
SCS Soils Conservation Service
SHPO State Historic Preservation Office
SRA Stateline Resource Area
SRMA Special Recreation Management Area
USDI U.S. Department of Interior
USFWS U.S. Fish and Wildlife Service
VRM Visual Resource Management
WSA Wilderness Study Area

APPENDIX D

GLOSSARY

ACRE-FOOT: The volume of water that will cover an acre of land to a depth of 1 foot (323,851 gallons or 43,560 cubic feet).

ACTIVITY PLAN: A detailed, specific plan for management of a single resource program or plan element undertaken as necessary to implement the more general resource management plan decisions.

ADVERSE EFFECT (Cultural Resources): Alteration of the characteristics which contribute to the use(s) determined appropriate for a cultural resource or which qualify a cultural property for the National Register to such a degree that the appropriate use(s) are diminished or precluded or the cultural property is disqualified from National Register eligibility. Criteria in the regulations of the Advisory Council (36 CFR Part 800) guide the determination of adverse effects.

AIR POLLUTION: Accumulation of aerial wastes beyond the concentrations that the atmosphere can absorb and which may, in turn, damage the environment.

AIR QUALITY CLASSES: Classes established by the Environmental Protection Agency (EPA) that define the amount of air pollution considered significant within an area:

I: Almost any change in air quality would be considered significant.

II: Deterioration normally accompanying moderate, well-controlled growth would be considered insignificant.

III: Deterioration up to the national standards would be considered insignificant.

ALLOTMENT: An area allocated for the use of the livestock or one or more qualified grazing permittees or lessees which includes prescribed numbers and kinds of livestock under one plan of management.

ALLOTMENT MANAGEMENT PLAN: A documented program which applies to livestock operations on the public lands, which is prepared in consultation with the permittee (s) or lessees involved, and which : 1) prescribes the manner in which livestock operations will be conducted in order to meet the multiple-use, sustained yield,economic, and other needs and objectives as determined for the public lands through land use planning.

ALLUVIAL FAN: A fan-shaped accumulation of disintegrated soil material; water deposited and located in a position where the water departs from a steep course to enter upon a flat plain or open valley bottom.

ALLUVIUM: Material, including clay, silt, sand, gravel, or similar unconsolidated sediments, deposited by a stream bed or other body of running water.

AMBIENT AIR QUALITY: Prevailing condition of the atmosphere at a given time; the outside air.

ANIMAL UNIT MONTH (AUM): The amount of food or forage required by an animal unit (one cow or five sheep) for 1 month.

ANNUAL PLANT SPECIES: A plant that completes its life cycle and dies in 1 year or less.

APPARENT TREND: An interpretation of the direction of change in vegetation and soil protection over time, based on a single observation. Apparent trend is described in the same terms as measured trend except that when no trend is apparent, it shall be described as none.

AQUIFER: A water-bearing unit of permeable rock or sediment which is capable of yielding water to wells.

ARCHAIC PERIOD: Archeological period of about 8,000 years B.P.

ARCHEOLOGICAL DISTRICT: An area that provides a concentration of cultural properties in a discrete, definable location.

AREA OF CRITICAL ENVIRONMENTAL CONCERN: Areas within the public land where special management attention is needed to protect and prevent irreparable damage to important historical, cultural, or scenic values, fish and wildlife resources, or other natural systems or processes, or to protect life and safety from natural hazards.

ASPECT SPECIES: A vegetation species that appears to be dominant in the landscape, although it may be only a small percent of the total vegetation composition.

BIOMASS: The total quantity of living organisms of one or more species per unit of space (called species biomass) or of all the species in a community (called community biomass).

BROWSE: (noun) That part of leaf and twig growth of shrubs, woody vines, and trees available for animal consumption. (verb) To consume browse.

BROWSERS: Animals which feed primarily on browse.

CALICHE: A layer in the soil more or less cemented by calcium carbonates (CaCo3), commonly found in arid and semiarid regions.

CAMPSITE: A cultural site type representative of all periods consisting of temporary habitation areas which usually contain a lithic scatter, evidence of fire use, ground stone, and pottery scatter.

CANDIDATE SPECIES: Any species of plant or animal listed in the for consideration to be listed as threatened or endangered by U.S. Fish and Wildlife Services (USFWS) under the Endangered Species Act. Definitions for Categories 1 and 2 candidate species, excerpted from the *Federal Register*, are as follows:

> *Category 1:* Taxa for which the USFWS currently has on file substantial information on biological vulnerability and threat(s) to support the appropriateness of proposing to list them as endangered or threatened species. Presently, data are being gathered concerning precise habitat needs, and for some of the taxa, concerning the precise boundaries for critical habitat designations. Development and publication of proposed rules on these taxa are anticipated, but, because of the large number of such taxa, could take some years. Also included in category 1 are taxa whose status in the recent past is known, but that may already have become extinct.

Category 2: Taxa for which information now in possession of the USFWS indicates that proposing to list them as endangered or threatened species is possibly appropriate, but for which substantial data on biological vulnerability and threat(s) are not currently known or on file to support the immediate preparation of rules. Further biological research and field study usually will be necessary to ascertain the status of the taxa in Category 2, and some of the taxa are of uncertain taxonomic validity. It is likely that some of the taxa w/ill not warrant listing, while others will be found to be in greater danger of extinction than some taxa in category 1.

CARRYING CAPACITY: Maximum stocking rate possible without inducing damage to vegetation or related resources. It may vary from year-to-year on the same area due to fluctuating weather conditions and forage production. (See Grazing capacity.)

CAVE: Any naturally occurring void, cavity, recess, or system of interconnected passages which occurs beneath the surface of the earth or within a cliff or ledge (including any cave resource therein, but not including any vug, mine, tunnel, aqueduct, or other manmade excavation) and which is large enough to permit an individual to enter, whether or not the entrance is naturally formed or manmade. Such term shall include any natural pit, sinkhole, or other feature which is an extension of the entrance.

CLAY: A mineral soil separate consisting of particles less than 0.002 millimeters in equivalent diameter.

CLIMAX VEGETATION COMMUNITY: The final or stable community in a series of successive vegetation states which is self-perpetuating and in dynamic balance with the physical and biotic environment.

COMMUNITY: A group of plants and animals living together in a common area and having close interactions.

CONTRAST (VISUAL): The effect of a striking difference in the form, line, color, or texture of an area being viewed.

CONTRAST RATING: A method of determining the extent of visual impact of an existing or proposed activity that will modify any landscape feature.

COORDINATED RESOURCE MANAGEMENT PLAN: A plan for management of one or more allotments that involves all the affected resources, e.g. range, wildlife, and watershed.

COVER: Small rocks, litter, basal areas of grass and forbs, and aerial coverage of shrubs that provide protection to the soil surface (i.e. in contrast to bare ground.)

CRITICAL SOILS: Soils that (1) contain very highly saline soils and/or (2) are very susceptible to water erosion.

CRITICAL WATERSHED: An area of soils that (1) have a high potential for salt yield; (2) are subject to severe water and wind erosion when disturbed; (3) have high runoff potential during storm events; (4) are subject to frequent flooding; or (5) have a potential for loss of vegetation productivity under high rates of wind and water erosion.

CRITICAL WILDLIFE HABITAT: Is defined in the Endangered Species Act as follows (i) The specific areas within the geographical area occupied by an animal species at the time it is listed in accordance with the provisions of section 4 of this Act on which are found those physical or biological features (1) essential to the conservation of the species and (11) which may require special management considerations or protection; and (ii) specific area outside the geographical area occupied by the species at the time it is listed in accordance with the provisions of section 4 of this Act, upon a determination by the Secretary that such areas are essential for the conservation of the species.

CRUCIAL WILDLIFE HABITAT: Sensitive use areas that are necessary to the existence, perpetuation, or introduction of one or more species during critical periods of their life cycles.

CULTURAL PROPERTY: Any definite location of past human activity, habitation or use identified through a field inventory (see below), historical documentation or oral evidence. This term may include (1) archeological or historic sites, structures and places, and (2) sites or places of traditional cultural or religious importance to a specific group, whether or not represented by physical remains. Cultural properties are managed by the system of inventory evaluation, protection, and use.

CULTURAL RESOURCES: Those fragile and non-renewable remains of human activities, occupations, and endeavors as reflected in sites, buildings, structures, or objects, including works of art, architecture, and engineering. Cultural resources are commonly discussed as prehistoric and historic values, but each period represents a part of the full continuum of cultural values from the earliest to the most recent.

CULTURAL RESOURCE INVENTORY CLASSES:

Class I- Existing Date Inventory: an inventory study of a defined area designed to provide a narrative overview (cultural resource overview) derived from existing cultural resource information and to provide a compilation of existing cultural resource site record data on which to base the development of BLM's site record system.

Class 2- Sampling Field Inventory: a sample-oriented field inventory designed to locate and record, from surface and exposed profile indications, all cultural resource sites within a portion of a defined area in a manner which will allow an objective estimate of the nature and distribution of cultural resources in the entire defined area. The Class 11 inventory is a tool utilized in management and planning activities as an accurate predictor of cultural resources in the area of consideration. The primary area of consideration for the implementation of a Class 11 inventory is a planning unit. The secondary area is a specific project in which an intensive field inventory (Class 111) is not practical or necessary.

Class III- Intensive Field Inventory: an intensive field inventory designed to locate and record, from surface and exposed profile indications, all cultural resource sites within a specified area. Normally, upon completion of such inventories in an area, no further cultural resource inventory work is needed. A Class 111 inventory is appropriate on small project areas, all areas to be disturbed, and primary cultural resource areas.

CULTURAL SITE: A physical location of past human activities or events. Cultural resource sites are extremely variable in size and range from the location of a single cultural resource object to a cluster of cultural resource structures with associated objects and features. Prehistoric and historic sites which are recorded as cultural resources have sociocultural or scientific values and meet criterion of being more than 50 years old.

DESERT WILDLIFE MANAGEMENT AREA: Desert Wildlife Management Areas (DWMAs) are designated areas in which protective management actions would be implemented to provide for the long-term persistence of viable desert tortoise populations and the ecosystem upon which they depend.

DESIGNATED RIGHT-OF-WAY CORRIDOR: A parcel of land, either linear or areal, that has been identified by Secretarial Order, through the land use planning process, or by other management decision, as a preferred location for existing and future rights-of-way grants and suitable to accommodate more than one type of right-of- way or one or more rights-of-way which are similar, identical, or compatible.

DIVERSITY: An attribute of an area which is an expression of both the total number and relative abundance of species, communities, or habitats. Relative abundance can be measured by numbers of individuals, cover, or various other characteristics.

EARLY SERAL STAGE: A plant community with a species composition which is 0-25% of the potential natural community one would expect to find on that ecological site.

ECOLOGICAL SITE: A kind of land with a specific potential natural community and physical site characteristics differing from other kinds of land in its ability to produce vegetation and to respond to management.

ECOLOGICAL STATUS: The present state of vegetation and soil protection of an ecological site in relation to the potential natural community for the site. Vegetation status is the expression of the relative degree to which the kinds, proportions, and amounts of plants in a community resemble that of the potential natural community. If classes are used, they should be described in ecological rather than utilitarian terms. Soil status is a measure of present vegetation and litter cover relative to the amount of cover needed on the site to prevent accelerated erosion.

ECONOMIC IMPACT: The change, positive or negative, in economic conditions (including distribution and stability of employment and income in affected local and regional economies) that directly or indirectly result from an activity, project, or program.

ECOSYSTEM: A complex self-sustaining natural system which includes living and nonliving components of the environment and the circulation of matter and energy between organisms and their environment.

ENDANGERED SPECIES: An animal or plant whose prospects for survival and reproduction are in immediate jeopardy, and as further defined by the Endangered Species Act of 1973.

ENVIRONMENTAL ASSESSMENT (EA): A concise public document for which a Federal agency is responsible that serves to: (a) briefly provide sufficient evidence and analysis for determining whether to prepare an environmental impact statement or a finding of no significant impact; (b) aid an agency's compliance with the National Environmental Policy Act (NEPA) when no environmental impact statement is necessary; (c) facilitate preparation of a statement when one is necessary, An EA includes brief discussions of the need for the proposal, of alternatives as required by Sec. 102 (2) of NEPA, of the environmental impacts of the proposed action and other alternatives, and a listing of agencies and persons consulted.

ENVIRONMENTAL CONSEQUENCE: A temporal or spatial change in the human environment caused by an act of man. The change should be (1) perceptible, (2) measurable, and (3) relatable through a change agent to a proposed action or alternative. A consequence is something that follows an antecedent (as a cause or agent). Consequences are synonymous with impacts and effects.

ENVIRONMENTAL IMPACT STATEMENT (EIS): A written analysis of the impacts on the environment of a proposed project or resource management plan.

EROSION: The wearing away of land surface by wind, running water, and other geological agents.

EVALUATION (Cultural Resources): The analysis of cultural resource inventory records, the application of professional judgement to identify characteristics that contribute to possible uses for recorded cultural resources, and the recommendation of appropriate use(s) for each resource or group of resources. National Register eligibility criteria, 36CFR Part 60, are interpreted through or with reference to BLM evaluation criteria.

EXISTING RIGHT-OF-WAY CORRIDOR: A parcel of land, without fixed limits or boundaries, that is being used as the locations for one or more rights-of-way.

EXOTIC SPECIES: A species which is not native to the United States.

EXTENSIVE RECREATION MANAGEMENT AREAS (ERMAs): Areas where recreation is unstructured and dispersed and where minimal recreation-related investments are required. ERMAs provide recreation visitors the freedom of choice with minimal regulatory constraint.

FEDERAL LAND: Land owned by the United States, without reference to how the land was acquired or which federal agency administers the land, including mineral or coal estates underlying private surface.

FEDERAL LAND POLICY AND MANAGEMENT ACT OF 1976 (FLPMA): Public Law 94-579, which gives the BLM legal authority to establish public land policy, to establish guidelines for administering such policy and to provide for the management, protection, development and enhancement of the public land.

FIRE MANAGEMENT: The integration of fire protection, prescribed burning, and fire ecology knowledge into multiple use planning, decision making, and land management activities.

FORAGE: All browse and herbaceous foods available to grazing animals.

FORAGE UTILIZATION: An index of the extent to which forage is used. Utilization classes range from slight (less than 20 percent) to severe (more than 80 percent).

FORB: Any herbaceous nonwoody plant that is not grass or grass-like.

GRASS: Any of a family of plants with narrow leaves, jointed stems, and seed- like fruit.

GRAZING PREFERENCE: The total number of AUMS of livestock grazing on public lands apportioned and attached to base property owned or controlled by a permittee or lessee. Active preference combined with suspended non-use make up total grazing preference.

GROUND WATER: Water beneath the land surface, in the zone of saturation.

GULLY EROSION: Removal of soil leading to formation of relatively large channels 01 gullies cut into the soil by concentrations of runoff.

HABITAT: A specific set of physical conditions that surround the single species, a group of species, or a large community. In wildlife management, the major components of habitat are considered to be food, water, cover, and living space.

HABITAT MANAGEMENT PLAN (HMP): A written and officially approved plan for a specific geographical area of public land which identifies wildlife habitat and related objectives, establishes the sequence of actions for achieving objectives, and outlines procedures for evaluating accomplishments.

HAZARDOUS WASTE OR MATERIAL (HAZMAT): Any substance that poses a threat to the health or safety of persons or the environment. These include any material that is toxic, ignitable, corrosive, or radioactive.

HEAVY USE: Indicates that 60-80 percent of current year's forage production has been eaten or destroyed by grazing animals.

HERD MANAGEMENT AREA PLAN (HMAP): A written and officially approved plan for a specific geographical area of public land which identifies wild horse (or burro) herd use areas and habitat, identifies population and habitat objectives, establishes the sequence of actions for achieving objectives, and outlines procedures for evaluating accomplishments.

HISTORICAL CULTURAL RESOURCES: Historical cultural resources include all mines, ranches, towns, resorts, railroads, trails, and other evidence of human use from the entrance of the Spanish to 1 938.

ISOLATED TRACT: A parcel of public lands surrounded by non-federal lands.

KARST: A type of topography that results from dissolution and collapse of limestone, dolomite, or gypsum beds and is characterized by closed depressions or sinkholes, caves, and underground drainage.

KEY FORAGE SPECIES: Forage species whose use serves an indicator of the degree of use of associated species.

LAND DISPOSAL: A transaction that leads to the transfer of title of public lands from the federal government.

LATE SERAL: A plant community with a species composition which is 51-75% of the potential natural community one would expect to find on that ecological site.

LEASABLE MINERALS: Minerals such as coal, oil shale, oil and gas, phosphate, potash, sodium, geothermal resources, and all other minerals that may be acquired under the Mineral Leasing Act of 1 920, as amended.

LIMESTONE: A sedimentary rock consisting chiefly (more than 50 percent) of calcium carbonate, primarily in the form of calcite.

LITHIC: A stone or rock exhibiting modification by humans. It generally applies to projectile points, scrapers and chips, rather than ground stone.

LITHIC SCATTER: A prehistoric cultural site type where flakes, cores, and stone tools are located as a result of the manufacture or use of the tools.

LOAM: Soil material that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand.

LOCATABLE MINERALS: A mineral subject to location under the 1872 mining laws. Examples of such minerals would be gold, silver, copper, and lead as compared to oil and natural gas, which are leasable minerals.

LONG-TERM PLANNING: Twenty years and beyond; approximately the year 201 2.

MANAGEMENT FRAMEWORK PLAN (MFP): A planning decision document that establishes for a given planning area land use allocations, coordination guidelines for multiple use, and management objectives to be achieved for each class of land use or protection. An MFP is prepared in three steps: (1) resource recommendations, (2) impact analysis and alternative development, and (3) decision making.

METALLIC MINERALS: Those minerals whose native form is metallic or whose principal products after refinement are metallic.

MID SERAL STAGE: A plant community with a species composition which is 26-50% of the potential natural community one would expect to find on that ecological site.

MINERAL ENTRY: The location of mining claims by an individual to protect his right to a valuable mineral.

MINERAL WITHDRAWALS: Closure of land to mining laws, including sales, leasing and location, subject to valid existing rights.

MITIGATION: The lessening of a potential adverse effect by applying appropriate protection measures, the recovery of cultural resource data or other measures.

MODERN URBAN: One of the six classes of the recreation opportunity spectrum. In modern urban areas, opportunities to experience recreation in affiliation with individuals and groups are prevalent, as is the convenience of recreation sites and opportunities. Opportunities for wildland challenges, risk taking, and testing outdoor skills are unimportant. Opportunities for competitive spectator sports are common, as are opportunities to use parks and open spaces highly influenced by people.

MODERATE USE: Indicates that 40-60 percent of current year's forage production has been eaten or destroyed by grazing animals.

MONITORING: The orderly collection and analysis of data to evaluate progress in meeting resource management objectives.

MULTIPLE USE: Management of public lands and their various resource values so that they are used in the combination best meeting the present and future needs of the American people. Relative resource values are considered, not necessarily the combination of uses that will give the greatest potential economic return or the greatest unit output.

NATIONAL AMBIENT AIR QUALITY STANDARDS (NAAQS): National standards, established under the Clean Air Act by the Environmental Protection Agency (EPA), prescribed levels of pollution in the outdoor air which may not be exceeded. There are two levels of NAAQS: primary, set at a level to protect the public health from air pollution damage, and secondary set at a level to protect public welfare from air pollution damage.

NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) OF 1969: A law enacted on January 1, 1970 that established a national policy to maintain conditions under which man and nature can exist in productive harmony and fulfill the social, economic, and other requirements of present and future generations of Americans. It established the Council on Environmental Quality for coordinating environmental matters at the federal level and to serve as advisor to the President on such matters. The law/ made all federal actions and proposals which could have significant impact on the environment subject to review by federal, state, and local environmental authorities.

NATIONAL HISTORIC PRESERVATION ACT (NHPA): The primary federal law providing for the protection and preservation of cultural resources. NHPA established the National Register of Historic Places, the Advisory Council on Historic Preservation, and the State Historic Preservation Officers.

NATIONAL REGISTER OF HISTORIC PLACES (NRHP): A list of districts, sites, buildings, structures, and objects significant in American history, architecture, archeology, and culture maintained by the Secretary of the Interior. Expanded as authorized by Section 2(b) of the Historic Sites Act of 1935 (16 U.S.C. 462) and Section 101(a) (1)(A) of the National Historic Preservation Act.

NATURAL AREA: Land managed for (1) retention of its typical or unusual plant or animal types, associations or other biotic phenomenal or (2) its outstanding scenic, geologic, soil or aquatic features or processes.

NONPOINT POLLUTION: Pollution from scattered sources, as opposed to pollution from one location, e.g. a manufacturing plant.

NONUSE: Current authorized grazing use (in AUMs) that is not used during a given time period. Nonuse is applied for and authorized on an annual basis.

OFF-HIGHWAY VEHICLE (OHV): Any motorized vehicle designed for cross-country travel over any type of natural terrain.

OFF-HIGHWAY VEHICLE DESIGNATIONS: BLM designations used in this document are as follows:

Open areas are designated areas and trails where OHVs may operate without restrictions.

Limited areas are designated areas and trails where the use of OHVs is subject to restrictions such as limits on the number or types of vehicles allowed or the dates and times of use, limit of use to existing roads and trails, or limit of use to designated roads and trails.

Closed areas are areas and trails where the use of OHVs are permanently or temporarily prohibited. Emergency use of vehicles is allowed.

OVERGRAZING: Consumption of vegetation by herbivores beyond the endurance of a plant to survive.

PERENNIAL PLANT SPECIES: A plant that has a life cycle of 3 years or more.

PERENNIAL STREAM: A stream of portion of stream which flows continually.

PERMITTEE: One who holds a permit to graze livestock on public land.

PETROGLYPH: A form of rock art manufactured by incising, scratching or pecking designs into rock surfaces.

PICTOGRAPH: A form of rock art created by applying mineral based or organic paints to rock surfaces.

PLANT COMMUNITY: One or more plant species growing in association on a given location of area.

PLAYA: The usually dry and nearly level lake plain that occupies the lowest part of a closed depression.

PREDATOR: An animal that preys on one or more other animals.

PRIMITIVE: One of the six classes of the recreation opportunity spectrum. Primitive areas offer recreation opportunities for isolation from the sights and sounds of human activities, where a visitor can feel a part of the natural environment, experience a high degree of challenge and risk, and use outdoor skills.

PROPOSED SPECIES: Any species of plant or animal formally proposed by the U.S. Fish and Wildlife Service (USFWS) to be listed as threatened or endangered under the Endangered Species Act.

PUBLIC LAND: Any land and interest in land owned by the United States and administered by the Secretary of the Interior through the Bureau of Land Management, without regard to how the United States acquired ownership, except:

-lands located on the Outer Continental Shelf;

-lands held for the benefit of Indians, Aleuts, and Eskimos;

-lands in which the United States retains the minerals, but surface is private.

RANGE IMPROVEMENT: A structure, development or treatment used to rehabilitate, protect or improve the public lands to advance range betterment.

RANGE SITE: Rangeland that differs in its ability to produce a characteristic natural plant community. A range site is the product of all the environmental factors responsible for its development. It is capable of supporting a native plant community typified by an association of species that differ from other range sites in the kind or proportion of species or in total production.

RANGE TREND: The direction of change in range condition; it indicates whether range condition is improving, declining or remaining stable.

RANGELAND CONDITION (ECOLOGICAL): The present state of the vegetation on a range site in relation to the climax (natural potential) plant community for that site. It is an expression of the relative degree to which the kinds, proportions, and amounts of plants in a plant community resemble that of the climax plant communitY for the site. Rangeland condition is basically an ecological rating of the plant community.

Four classes are used to express the degree to which the composition of the present plant community reflects that of the climax.

CONDITION CLASS	RANGE SITE
Excellent	76-100
Good	51-75
Fair	26-50
Poor	0-25

RANGELAND CONDITION TREND: The direction of change in rangeland condition.

RAPTOR: Any predatory bird (such as a falcon, hawk, eagle or owl) that has feet with sharp talons or claws adapted for seizing prey and a hooked beak for shearing flesh.

RECREATION OPPORTUNITY SPECTRUM: A continuum used to characterize recreation opportunities in terms of setting, activity, and experience opportunities. Six classes are included: Primitive, Semiprimitive Nonmotorized, Semiprimitive Motorized, Roaded Natural, Rural, and Modern Urban. RIGHT-OF-WAY (ROW) An easement or permit which authorizes public land to be used for a specified purpose that generally requires a long narrow strip of land. Examples are roads, powerlines, pipelines, etc.

RECREATION VISITOR DAY: An aggregation of 1 2 visitor hours. A visitor hour is the presence of one or more persons on land and water for outdoor recreation for periods totalling 60 minutes; one person for one hour, two persons for one-half hour each, and so on.

RIPARIAN ZONE: The banks and adjacent areas of water bodies, water courses, seeps, springs, and meadows, whose waters provide soil moisture sufficiently in excess of that otherwise available locally so as to provide a more moist habitat than that of contiguous plains and uplands.

ROADED NATURAL: One of the six classes of the recreation opportunity spectrum. Roaded natural areas offer about equal opportunities for affiliation with other user groups or isolation from sights and sounds of human activities. Such areas provide the opportunity for visitors to have a high degree of interaction with the natural environment. Challenge and risk opportunities are not very important except in specific challenging activities. The practice of outdoor skills may be important. Opportunities for both motorized and nonmotorized recreation are present.

ROCK ART ((PETROGLYPH OR PICTORGRAPH): An Archaic to Modern cultural site type consisting of incised or painted figures such as people, animals, plants or abstracts on a rock surface.

ROCK SHELTER: A cultural site type representative of all periods consisting of an area protected by an overhanging cliff. Often associated with the same materials as a campsite or rock art.

RUNOFF: A general term used to describe the portion of precipitation on the land that ultimately reaches streams; may include channel and non-channel flow.

RURAL: One of the six classes of the recreation opportunity spectrum. In rural areas, opportunities to experience recreation in affiliation with individuals and groups are prevalent, as is the convenience of recreation sites. These factors generally are more important than the natural setting. Opportunities for wildland challenges, risktaking, and testing of outdoor skills are unimportant except inactivities involving challenge and risk.

SAND: Individual rock or mineral fragments in a soil that range in diameter from 0.05 to 2.0 millimeters, Most sand grains consist of quartz, but they may be of any mineral composition. The textural class name of any soil that contains 85 percent or more sand and less that 10 percent clay.

SECTION: One square mile or 640 acres.

SEDIMENT: Solid, clastic material, both mineral and organic, that is in suspension, is being transported or has been moved from its site of origin by water, wind, or ice and has come to rest on the earth's surface.

SEMI-PRIMITIVE MOTORIZED RECREATION: One of the six classes of the recreation opportunity spectrum. Semiprimitive motorized areas offer some opportunities for isolation from the sights and sounds of human activities, but this is not as important as opportunities for primitive recreation. Use of these areas involves the opportunities for visitors to have a high degree of interaction with the natural environment, to have moderate challenge and risk, and to use outdoor skills. Such an area provides an explicit opportunity to use motorized equipment while in the area.

SEMI-PRIMITIVE NON-MOTORIZED RECREATION: One of the six classes of the recreation opportunity spectrum. Semiprimitive nonmotorized areas offer some opportunities for isolation from the sights and sounds of human activities, but this is not as important as opportunities for primitive recreation. Use of these areas involves the opportunity for visitors to have a degree of interaction with the natural environment, to have moderate challenge and risk, and to use outdoor skills.

SEVERE USE: Utilization in excess of 80 percent.

SHORT-TERM IMPACT: Ten years or less; approximately the year 2001.

SILT: Sedimentary material consisting primarily of mineral particles intermediate in size between sand and clay.

SLIGHT USE: Indicates that 0 to 20 percent of current year's forage production has been eaten or destroyed by grazing animals.

SOILS: (a) The unconsolidated mineral material on the immediate surface of the earth that serves as a natural medium for the growth of land plants. (b) The unconsolidated mineral matter of the surface of the earth that has been influenced by genetic and environmental factors including parent material, climate, topography, all acting over a period of time and producing soil that differs from the parent material in physical, chemical, biological, and morphological properties and characteristics.

SOIL ASSOCIATIONS: (a) A group of defined and named taxonomic soil units occurring together in an individual and characteristic pattern over a geographic region, comparable to plant associations in many ways. (b) A soil mapping unit in which two or more defined taxonomic units occurring together in a characteristic pattern are combined because of map scale or intermixing of taxonomic units.

SOIL COMPACTION: A decrease in the volume of a soil as a result of compressive stress from livestock trampling as an example.

SOIL DEPTH:

SOIL DEPTH DESCRIPTION	LOWER BOUNDARY OF SOIL (inches)
Very Shallow	12
Shallow	12-20
Moderately Deep	20-36
Deep	36-40
Very Deep	40

SOIL PROFILE: A succession of soil zones or horizons beginning at the surface that have been developed through normal soil-forming processes.

SOIL SERIES: A group of soils having genetic horizons (layers) that, except for texture of the surface layer, have similar characteristics and arrangement in the profile.

SPECIAL RECREATION MANAGEMENT AREA (SRMA): An area where special management or intensive recreation management is needed. Recreation activity plans are required, and greater managerial investment in facilities or supervision can be anticipated.

SUCCESSION: An orderly process of community development that involves changes in species structure and community processes with time; it is reasonably directional and, therefore, predictable.

SUSTAINED YIELD: The achievement and maintenance in perpetuity of a high level of annual or regular periodic output of the various renewable resources of the public lands consistent with multiple use.

THREATENED SPECIES: Any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range, and as further defined by the Endangered Species Act of 1973.

UTILIZATION: The portion of the current year's forage production that is consumed or destroyed by grazing animals.

VEGETATION STATUS: The expression of the relative degree to which the kinds, proportions, and amounts of plants in a community resemble that of the potential plant community (see early seral, mid seral, late seral and potential natural community).

VIEWSHED: The landscape that can be directly seen under favorable atmospheric conditions from a viewpoint or along a transportation corridor.

VISUAL RESOURCES: Visible features of the landscape including land, water, vegetation, and animals.

VISUAL RESOURCE MANAGEMENT (VRM): The planning, designing, and implementation of management objectives for maintaining scenic value and visual quality on public lands (see appendix on BLM Visual Resource Management).

WILDERNESS CHARACTERISTICS: Identified by Congress in the 1964 Wilderness Act; namely size, naturalness, outstanding opportunities for solitude or a primitive and unconfined type of recreation, and supplemental values such as geological, archeological, historical, ecological, scenic, or other features. It is required that the area possess at least 5,000 acres or more of contiguous public land or be of a size to make practical its preservation and use in an unimpaired condition; be substantially natural or generally appear to have been primarily by the forces of nature, with the imprint of man being substantially unnoticeable; and have either outstanding opportunities for solitude or a primitive and unconfined type of recreation.

WILDERNESS STUDY AREAS (WSA): A roadless area which has been found to have wilderness characteristics.

WILDERNESS STUDY CRITERIA: The criteria and quality standards developed in the Wilderness Study Policy to guide planning efforts in the wilderness EISs.

WILD HORSE AREA: An area of the public lands which provides habitat for one or more wild horse herds,

WILD HORSE: All unbranded and unclaimed horses and their progeny that have used public lands on or after December 15, 1971, or that do use these lands as all or part of their habitat.

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REFERENCES

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FRENCHMAN MTN. QUADRANGLE
NEVADA—CLARK CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
NW/4 HENDERSON 15' QUADRANGLE

SUPPLEMENT
RAINBOW GARDENS ACEC

ALTERNATIVES A,B,C,D
SUNRISE MOUNTAIN ACEC

RAINBOW GARDENS ACEC

SUNRISE MOUNTAIN WSA

N E L L I S A I R F O R C E B A S E

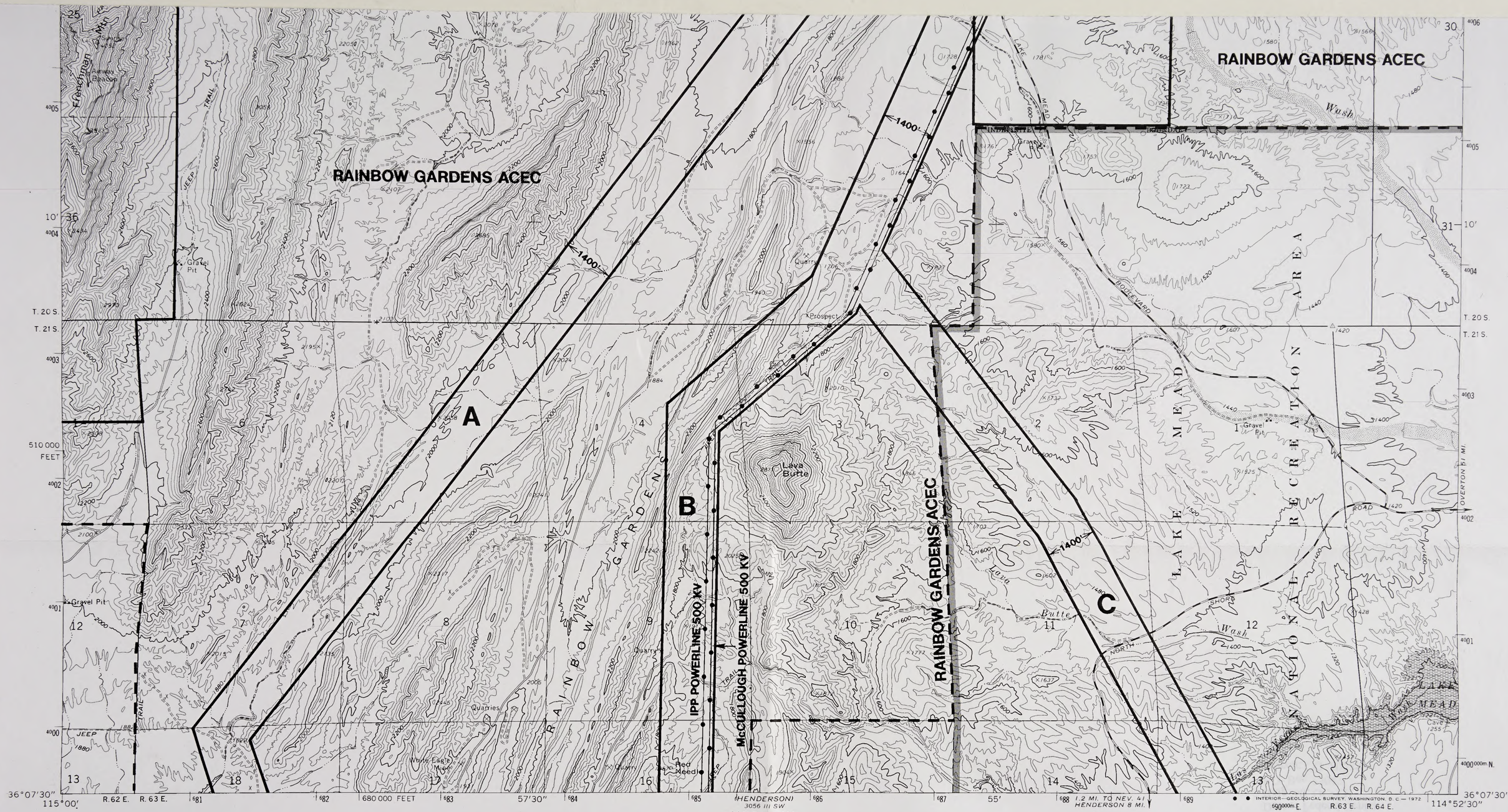
G A L E H I L L S

McCULLOUGH POWERLINE 500 KV

IPP POWERLINE 500 KV

2000'

115°00'
36°15'
114°52'30"
12'30"
680 000m E.
4013 000m N.
700 000 FEET
540 000 FEET
T. 19 S.
T. 20 S.
R. 62 E.
R. 63 E.



SCALE 1:24 000

1 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 5 0 1 KILOMETER

CONTOUR INTERVAL 40 FEET

DATUM IS MEAN SEA LEVEL

MAP 1 of 3

STATELINE RMP
SUPPLEMENT

ALTERNATIVE CORRIDORS
MAP 2–7b

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HENDERSON QUADRANGLE
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7.5 MINUTE SERIES (TOPOGRAPHIC)
SW/4 HENDERSON 15' QUADRANGLE

ALTERNATIVES A,B,C,D
SUNRISE MOUNTAIN
ACEC

SUPPLEMENT
RAINBOW GARDENS ACEC

A

B

C

BLM/LAKE LAS VEGAS
LAND EXCHANGE

LAKE LAS VEGAS
PROJECT

CALICO RIDGE
PROJECT

IPP POWERLINE 500 KV

McCULLOUGH POWERLINE 500 KV

RAINBOW GARDENS

LAKE MEAD
NATIONAL RECREATION AREA

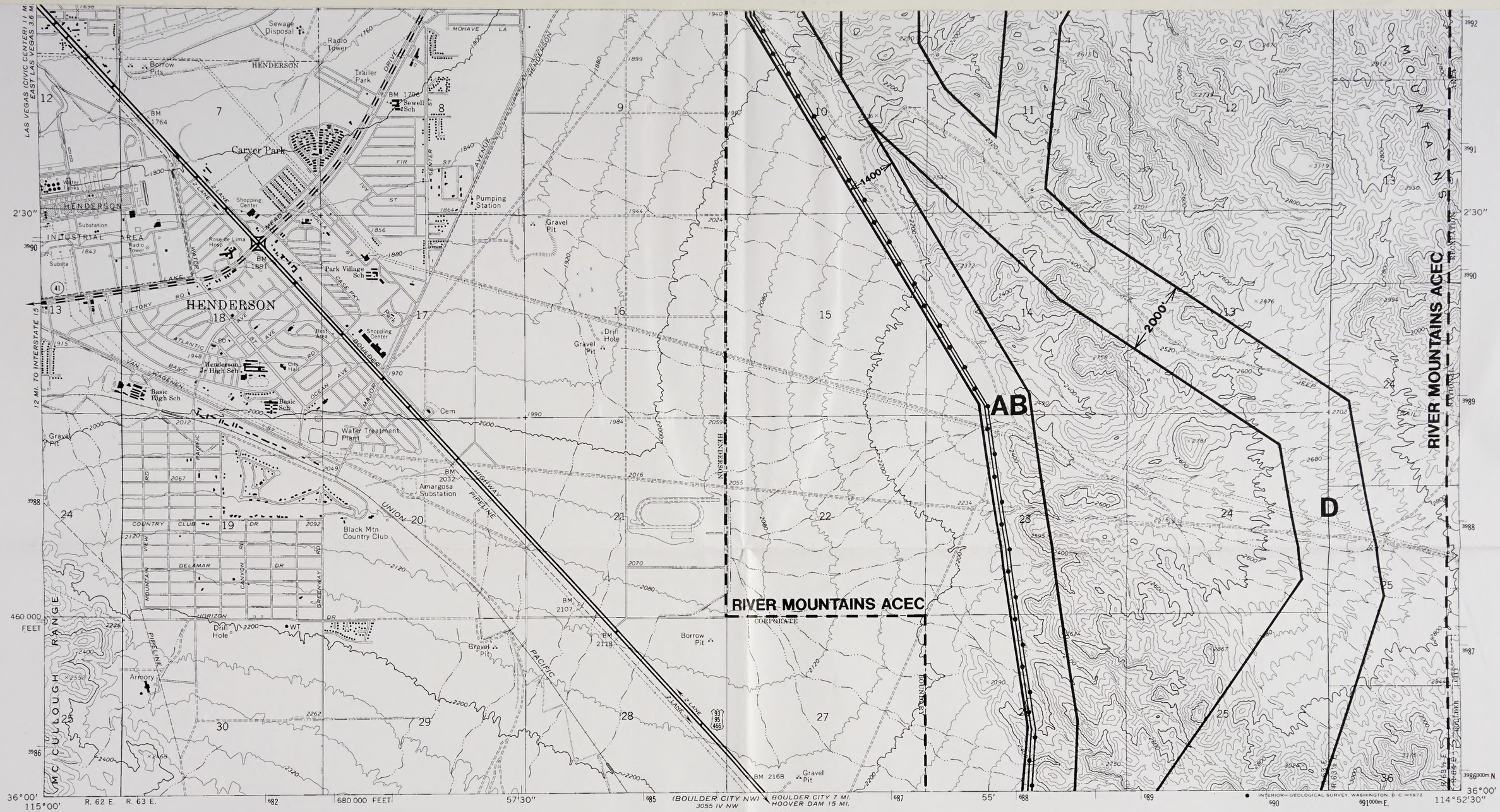
LAS VEGAS WASH R. S.O.J. MI. 9 MI. TO U.S. 93 & 466

3056 III NW (FRENCHMAN MTN.)

2956 II SE (LAS VEGAS SE)

3056 III SE (BOULDER BEACH)

115°00'
36°07'30"
R. 62 E.
R. 63 E.
681000m. E.
682
683
57'30"
684
685
686
687
55'
700 000 FEET
OVERTON 54 MI.
690
R. 63 E.
R. 64 E.
691
114°52'30"
36°07'30"
3999000m. N.
3998
3997
3996
3995
5'
3994
500 000 FEET
T. 21 S.
T. 22 S.
R. 63 E.
R. 64 E.
1400'
Wash
Las Vegas
Wash
Spring
Gaging Station
Gravel Pit
Tailings
Quarry
Pinnacle
Water Tank
TAILINGS PONDS
CORPORATE
TRAILER PARK
APACHE
PABCO ROAD
LAS VEGAS VALLEY
LATERAL
BOUNDARY
AQUEDUCT
TUNNEL
RIVER MOUNTAINS
LAKESHORE DRIVE
NORTHSHORE ROAD
TELEPHONE LINE
JEEP TRAIL
THREE KIDS MINE
BM 1695
BM 1747
BM 1545
BM 1419
BM 1599
BM 1708
BM 1711
WT
41
93
95
466



SCALE 1:24 000

1 MILE
7000 FEET
1 KILOMETER

CONTOUR INTERVAL 40 FEET
DOTTED LINES REPRESENT 20-FOOT CONTOURS
DATUM IS MEAN SEA LEVEL

MAP 2 of 3

STATELINE RMP
SUPPLEMENT

ALTERNATIVE CORRIDORS
MAP 2–7b

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ID:88045692

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BOULDER CITY NW QUADRANGLE
NEVADA—CLARK CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)

115°00′ 36°00′ R. 62 E. R. 63 E. 682000m.E. 57′30″ (HENDERSON 1:62 500) LAS VEGAS 16 MI. HENDERSON 3.3 MI. 55′ 700 000 FEET R. 63 E. R. 63½ E 114°52′30″ 36°00′

3985000m.N.

T. 22 S.
T. 23 S.

450 000 FEET

57′30″

M C C U L L O U G H R A N G E

RIVER MOUNTAINS ACEC

D

AB

McCULLOUGH POWERLINE 500 KV

IPP POWERLINE 500 KV

2000′

1400′

Railroad Pass
BM 2286

Alunite (Site)
BM 2323
Alunite Mine

Dutchman Pass
BM 2616

Quo Vadis Mine
Tunnel

Gravel Pit

BM 2271

Tunnels

Shaft

BM 2250

BM 2316

BM 2340

BM 2376

BM 2061

BM 1884

UNION PACIFIC
2 LANE

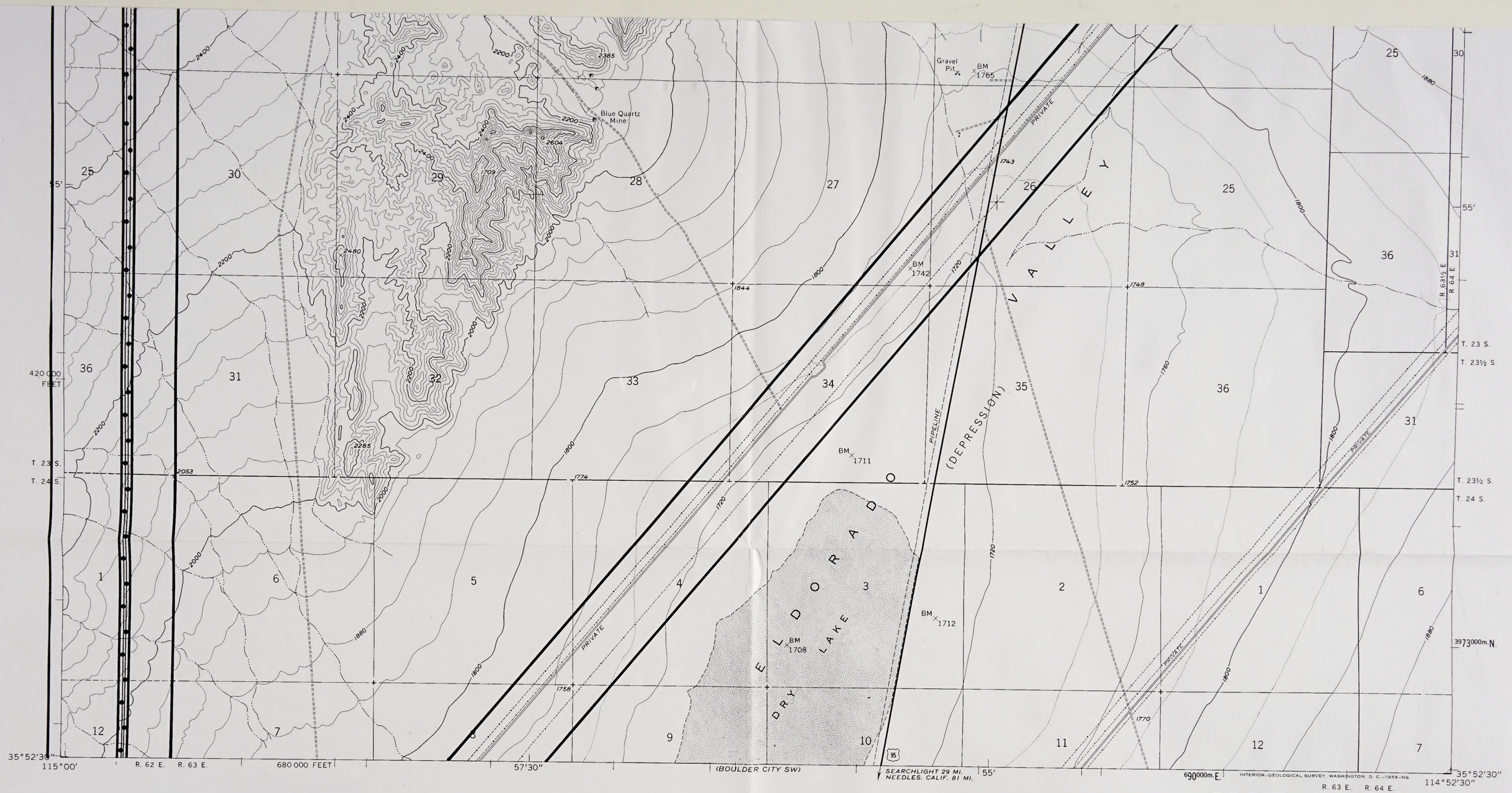
PIPELINE

PRIVATE

Mountains

(BOULDER CITY)

BOULDER CITY 2.4 MI.
KINGMAN, ARIZ. 83 MI.



INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D. C.—1959—NS

MAP 3 of 3

STATELINE RMP
SUPPLEMENT

CONTOUR INTERVAL 40 FEET
DOTTED LINES REPRESENT 20-FOOT CONTOURS
DATUM IS MEAN SEA LEVEL

ALTERNATIVE CORRIDORS
MAP 2–7b

#30506075

ID:38045692

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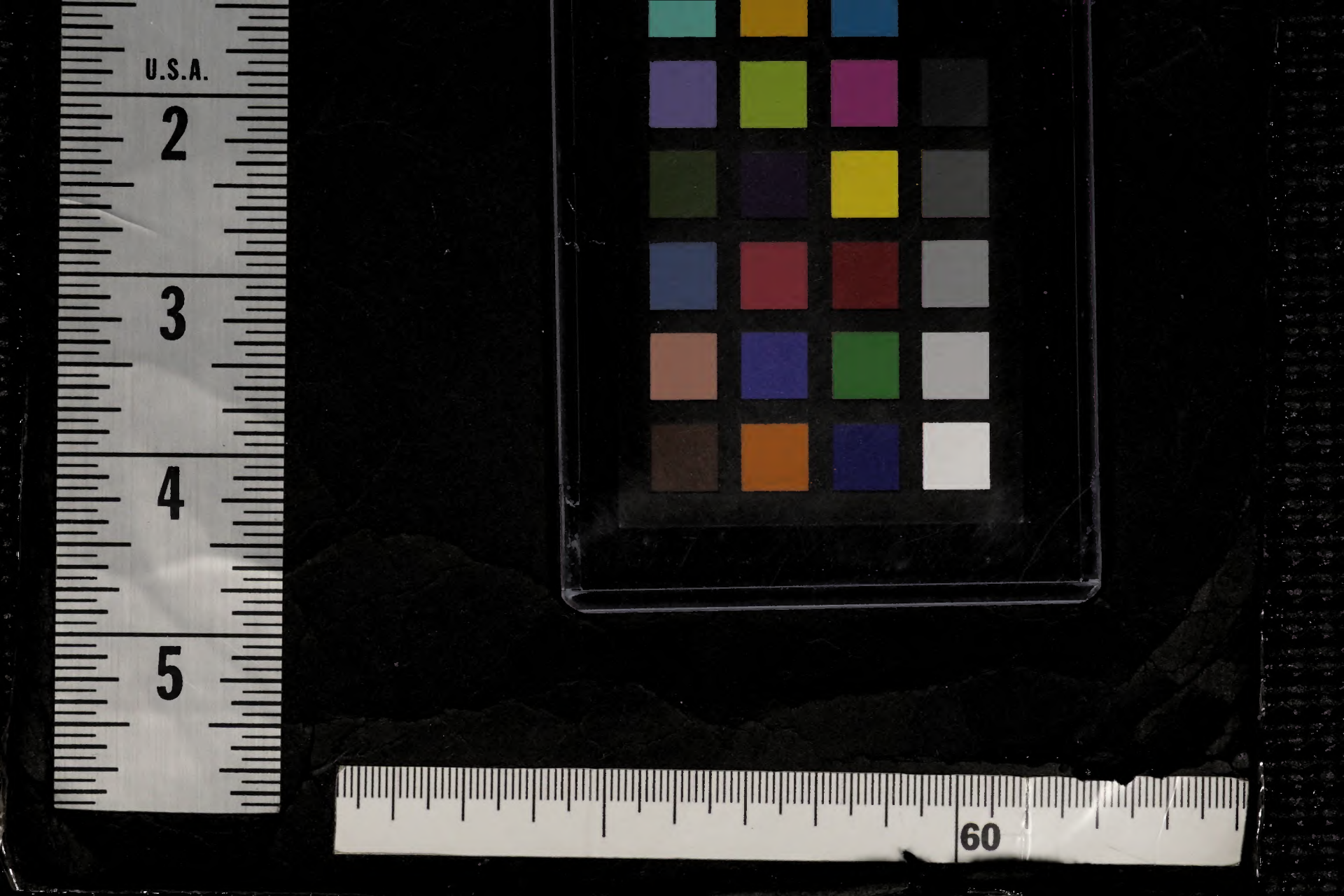
U.S.A.
2
3
4
5
60